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Revision of the Genus *Amblycerus* of the United States and Mexico (Coleoptera: Bruchidae: Amblycerinae)

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Abstract

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A key to species and descriptions are presented for 40 species of the genus *Amblycerus* of the United States and Mexico. New species *atkinsoni, cuernavacensis, chiapas, evangelinae, guerrerensis, hespenheidei, ireriae, mariae,* and *veracruz* are described. *Amblycerus serieguttatus* is a senior synonym of *A. luctuosus.* Species of *Amblycerus* were divided into 15 groups. Seven species occur in the United States, and 33 in Mexico. Some species also occur in Central and South America. Host plant records are reported for 27 species feeding in 54 different species of plants in 13 families. *Amblycerus* feed primarily in seeds of Leguminosae and to a lesser extent of Boraginaceae. Less common hosts are members of the Anacardiaceae, Combretaceae, Euphorbiaceae, Malpighiaceae, Malvaceae, Rhamnaceae, Sterculiaceae, Tiliaceae, Verbenaceae, and Vitaceae.

This is part of a series of studies of bruchid genera contributing to a comprehensive database for this important seed-feeding beetle family in the Western Hemisphere. It provides the means for identification of these insects for taxonomists, students, museum curators, biodiversity workers, port identifiers, and ecologists conducting studies in rangeland, pasture, and forest management in the United States and Mexico.

Keywords: Coleoptera, Bruchidae, Amblycerinae, *Amblycerus*, Leguminosae, United States, Mexico, keys, insect taxonomy, North America, insect-plant interactions.

While supplies last, single copies of this publication may be obtained at no cost from USDA–ARS: C.D. Johnson, Biology–Box 5640, Northern Arizona University, Flagstaff, AZ 86011–5640.

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Abbreviations

from the collection of—

AMNH	American Museum of Natural History, New York
COB	Charles & Lois O'Brien, Florida A&M University, Tallahassee
CAS	California Academy of Sciences, San Francisco
CDA	California Department of Agriculture, Sacramento
CM	Carnegie Museum of Natural History, Pittsburgh, PA
CNC	Canadian National Collection, Ottawa
HFH	H.F. Howden Collection, Ottawa, Canada
HH	Henry Hespenheide, UCLA
KU	University of Kansas, Lawrence
LSU	Louisiana State University, Baton Rouge
MCZ	Museum of Comparative Zoology, Harvard University
MIC	University of Michigan, Ann Arbor
MSU	Michigan State University, East Lansing
TUR	Turnbow Collection, Fort Rucker, Alabama
UCD	University of California, Davis
USNMNH	United States National Museum of Natural History (Smithsonian Institution)
WSU	Washington State University, Pullman

other:

CDJ #	C.D. Johnson collection number
spp.	species (plural)
n. sp.	new species

Introduction

Bruchid beetle larvae feed inside seeds and destroy their food and regenerative value, causing extensive postharvest losses of stored seed stocks. Bruchids vary considerably in their habits, and larvae feed only in seeds during their development and pupate within the cell or cavity formed during their growth. Host plants of bruchids are principally Leguminosae, Convolvulaceae, Palmae, and Malvaceae. They also feed in species of Tiliaceae, Malpighiaceae, Euphorbiaceae, Sterculiaceae, Anacardiaceae, Boraginaceae, Rhamnaceae, Vitaceae, Combretaceae, and Onagraceae (Kingsolver and Johnson 1978; Johnson 1983a; Johnson 1990; Udayagiri and Wadhi 1989). Species of the family Bruchidae are easily recognized by their characteristic compact body shape, small head, fully exposed pygidium, and pseudotetramerous tarsi.

According to Arnett (1963) 10 percent of the species of bruchids are worldwide in distribution and attack legumes that are grown for food or forage. Several are very serious pests of leguminous agricultural crops and legumes in storage. Economically significant species, however, probably make up much less than 5 percent.

Bruchids comprise approximately 1,400 species worldwide. Of these, 750 are known from the New World (Kingsolver 1990). The family Bruchidae is divided into the subfamilies Amblycerinae, Bruchinae, Eubaptinae, Kytorhininae, Rhaebinae, and Pachymerinae.

According to Johnson (1981) the subfamily Bruchinae contains by far the largest number of species, about 80 percent of the 1,400 species in the family. Amblycerinae (10 percent) and Pachymerinae (9 percent) have far fewer species, and the remaining subfamilies contain merely 1 percent.

Amblycerinae has only the genera *Amblycerus, Zabrotes,* and *Spermophagus.* The range of *Amblycerus* extends from southern Canada to southern Argentina, but, except for the West Indian fauna, no extensive studies of the genus have been made. *Amblycerus* are pests of forest trees and shrubs and of ornamental plants. None of the species in this genus affect major agricultural crops, but by destroying seeds, they reduce potential for regeneration of trees and shrubs in forestry plantings and those used for fuel, honey, and ornamental plantings. Biological and ecological data are scarce for this genus.

About 100 species of Amblycerus have been identified in the New World, but many more have been collected from Central and South America and remain to be described.

Amblycerus can be recognized by the presence of two large spurs on the tip of the hind tibia, the ocular sinus of the eye being shallow, and the metepisternal sulcus of the metepisternum forming an acute, obtuse, or right angle. However, species identification is often difficult because many distinguishing characteristics are in the male genitalia that can only be seen in dissection.

Only 25 species of *Amblycerus* have been previously reported from the United States and Mexico. We found 40 species to occur in this area. Original descriptions are usually inadequate and require examination of the type-specimen for positive identification.

The objectives of our research were to prepare a taxonomic revision of the genus Amblycerus in the United States and Mexico including a key for identification of the species from this area.

When Bridwell (1932) divided the Bruchidae into the subfamilies Bruchinae, Kytorhininae, Eubaptinae, Amblycerinae, and Pachymerinae, he included the genera *Amblycerus* Thunberg (1815), *Euspermophagus* Zacher (1930), *Pygospermophagus* Pic (1917), *Spermophagus* Schoenherr (1833), and *Zabrotes* Horn (1885) in Amblycerinae. But later, Bridwell (1946) included only *Amblycerus, Spermophagus* and *Zabrotes* in the Amblycerinae. Bottimer (1968), however, considered *Pygospermophagus* a valid genus but *Euspermophagus* a synonym of *Spermophagus*.

Kingsolver (1970b) expressed the opinion that Amblycerinae consisted of *Amblycerus, Spermophagus, Zabrotes,* and possibly *Pygospermophagus.* We agree with Kingsolver.

Early coleopterists assigned most new species now in the Amblycerinae to *Spermophagus* until *Zabrotes* was described by Horn in 1885. *Amblycerus* Thunberg was not recognized as a bruchid generic name until Bridwell (1930) designated *Bruchus robiniae* Fabricius (1781) as type-species of the genus. Bridwell (1946) redefined *Spermophagus* to include Old World species and *Zabrotes* and *Amblycerus* as New World genera. Blackwelder (1946) placed most of the named New World species of Amblycerinae in *Amblycerus* and *Zabrotes.*

Pic, Sharp, Dugès, Gyllenhal, Motschulsky, Chevrolat, Fabricius, Schaeffer, Jekel, Suffrian, Pierce, and more recently, Johnson, Kingsolver, and Ribeiro-Costa described new species now placed in *Amblycerus.* In recent years systematists have described new species and redefined species that were poorly described in the past. Kingsolver (1970b) published a synopsis of the subfamily Amblycerinae in the West Indies and described six new species of *Amblycerus.* Of these, *A. cerdanicola* and *A. baracoensis* occur in Mexico. In 1980 he described six additional new species of *Amblycerus*. Of these, *A. epsilon, A. multiflocculus, A. pterocarpae,* and *A. spondiae* occur in Mexico.

Udayagiri and Wadhi (1989) included only 75 species of *Amblycerus* in their catalog, several species being incorrectly assigned to *Spermophagus.* According to Kingsolver (1990), however, there are 102 species of *Amblycerus* in the New World, but the number may increase to 250 when all species are described.

Species in the Amblycerinae probably share more similar characters and are more easily recognized as members of the subfamily than members of any other subfamily in the Bruchidae. The subfamily has, according to Bridwell (1930), the "hind femur not strongly incrassate, only 0.5 as wide as coxa, channelled and longitudinally bicarinate beneath, carina usually unarmed, never with more than one short blunt tooth; hind coxa very broad, wider than length of first sternum behind it; hind tibia straight, not mucronate, bicalcarate; hind tarsus as long as tibia; front and middle tibiae not calcarate; pronotum without impressed line above lateral carinae."

Several features separate the genera *Amblycerus, Spermophagus,* and *Zabrotes.* Species of *Amblycerus* are characterized by eyes with a shallow emargination, the depth of the ocular sinus being less than one-third the diameter of the eye; the metathorax has a metepisternal sulcus; the procoxae are separated by an intercoxal process; and the metatibia lacks a lateral carina.

The eyes of species of *Spermophagus* are deeply emarginate—that is, the ocular sinus extends for one-half or more of the diameter of the eye; the metepisternal sulcus is absent on the metathorax; the tenth elytral stria extends nearly to the apex of the elytron; the procoxae are contiguous or are separated by a very thin vertical lamella; the anterior coxae have a supracoxal carina; the apex of the ventral margin of the metafemur has a short, vertical sulcus; and the metatibia has one or more lateral carinae.

Zabrotes is characterized by a deep emargination in the eye, the ocular sinus being one-half or more of the diameter of the eye; the metepisternal sulcus being absent; the tenth elytral stria extending only halfway to the apex of the elytron; the procoxa being contiguous or separated by a very thin vertical lamella; the supracoxal carina being absent on the anterior coxa; the apex of the ventral margin of the metafemur being entire; and the metatibia having one or more lateral carinae.

We consider a bruchid host plant to be one whose seeds are fed upon by the larvae. The Old World genus *Spermophagus* feeds principally in seeds of Convolvulaceae and a few species of Malvaceae. *Amblycerus* and *Zabrotes* feed primarily in seeds of Leguminosae. The Mexican bean weevil, *Zabrotes subfasciatus* (Boheman), is a very important pest of stored beans (Leguminosae) and has a nearly cosmopolitan distribution because it has been spread by commerce (Kingsolver 1970b). It is the only amblycerine bruchid of significant economic importance.

Amblycerus may have the broadest range of hosts for a genus of bruchids. Species of *Amblycerus* also have been reliably reported to feed in the Leguminosae, Malpighiaceae, Rhamnaceae, Boraginaceae, Sterculiaceae, Tiliaceae, Vitaceae, Euphorbiaceae, Combretaceae, and Anacardiaceae. Reports of feeding in seeds of Verbenaceae, Malvaceae, and Poaceae may be accurate, but more precise collecting must be done to corroborate or refute these reports.

Identifying the host plants of *Amblycerus* species (Appendixes 2, 3) is very important because there is a close relationship between bruchids and plant seeds. In some cases it is possible to identify a species of beetle knowing only the host plant species. However, there is not an extensive literature on their hosts. Zacher (1952) published an extensive host list for the Bruchidae, but subsequent studies by Johnson and others suggest that some of Zacher's records are unreliable and may be accidental associations. One example is Zacher listing *Pennisetum* sp. (Poaceae) as a host for *Amblycerus championi;* however, no bruchid has been reliably shown to feed in seeds of any of the grass family. Udayagiri and Wadhi (1989) apparently have done no field collecting and published only "host" records from the literature, including the records of Zacher (1952). These also must be used with caution.

In the middle of this century, L.J. Bottimer recognized the importance of information on hosts in the systematics and ecology of bruchids and associated many bruchids with their hosts by diligent seed collecting. In the past 30 years, C.D. Johnson and D.H. Janzen have made extensive and intensive collections of bruchids and their associated host plants, especially in the Neotropics.

Because of the close relationship between bruchids and their hosts, coevolution may be occurring. The term "coevolution" is confusing because there are several interpretations of the mechanisms of insect-plant interactions (Miller 1987). Some phytophagous species cospeciate with their host plants (parallel cladogenesis). Some host plants evolve separately from their predators but are later colonized by phytophagous species. Both phenomena probably occur in the Bruchidae. The best examples that illustrate coevolution between bruchids and their hosts were based on observational, not experimental, data. Janzen (1969) documented ways in which plants might protect their seeds from feeding by bruchids. Possible countermechanisms by bruchids to plant defenses were outlined by Center and Johnson (1974). Miller (1987) gave examples of colonization in which Papilionidae species have adapted to their hosts subsequent to plant cladogenesis.

Materials and Methods

Specimens

Large numbers of specimens of *Amblycerus* were borrowed from museums and university and private collections. Much host plant data came from material from the C.D. Johnson Collection. We borrowed specimens from—

United States National Museum of Natural History (Smithsonian Institution) (USNMNH)
California Department of Agriculture, Sacramento (CDA)
Museum of Comparative Zoology, Harvard University (MCZ)
California Academy of Sciences, San Francisco (CAS)
Michigan State University, East Lansing (MSU)
American Museum of Natural History, New York (AMNH)
H.F. Howden Collection, Ottawa, Canada (HFH)
Canadian National Collection, Ottawa (CNC)
Washington State University, Pullman (WSU)
Turnbow Collection, Fort Rucker, Alabama (TUR)
University of California, Davis (UCD)
University of Michigan, Ann Arbor (MIC)
Louisiana State University, Baton Rouge (LSU)
Carnegie Museum of Natural History, Pittsburgh, Pennsylvania (CM)
University of Kansas, Lawrence (KU)
Charles and Lois O'Brien, Florida Agricultural and Mechanical University, Tallahassee (COB)
Henry Hespenheide, University of California, Los Angeles (HH).

Following the sorting of these borrowed specimens, those assignable to described species were so labeled and recorded, and those not assignable were described as new.

Characters

External features used to classify *Amblycerus* species are integumental color; variation in vestiture, such as presence of stripes or spots, color, and pattern of pubescence; presence or absence of a median carina on the frons, a cervical sulcus, or cervical setae; degree of development of the lateral carina of the pronotum; presence or absence of foveolae on the pronotum, proepisternum, metasternum, metepisternum, hind femur, and pygidium; length of the ocular sinus and of calcaria on the hind tibia; angulation of metepisternal sulcus and length and shape of the transverse axis of the metepisternal sulcus; color of antennae; shape of the scutellum; presence or absence of a central spot on the pygidium or of fine long setae on the mesal region of the abdominal sterna; shape of the posterior margin of the pygidium; pattern of foveolae and cluster of punctures on the metacoxa.

Characters of the male genitalia used were the number of sclerites in the internal sac; presence or absence of spinules, small spines, and setae in the internal sac; shape of the lateral margins of the median lobe; and overall structure of the lateral lobes.

Genitalia Preparation and Illustration

We used the techniques outlined by Kingsolver (1970a) for preparation of male genitalia. His methods are to relax specimens by boiling them in 70 percent ethanol for approximately 4 to 8 min, depending on the size. The relaxed bruchid is held with the pygidium uppermost between the thumb and forefinger under a dissecting microscope. With fine forceps, the apex of the pygidium is then gently lifted to expose the genitalia. After severing connecting membranes with forceps, the genitalia are removed. The pygidium is then carefully restored to its normal, closed position.

In order to clean genitalia of muscle fibers and fat, they are placed in 10 percent KOH solution and heated for 6 to 10 min at 65 8C until clear. Cleared genitalia are washed in water to remove KOH and to eliminate tissues and placed in glycerin for observation. For storage, small plastic genitalia vials containing glycerin are used.

To illustrate the genitalia, we placed them in glycerin in a concave slide which was then put under a microscope with a camera lucida adapted for drawing genitalia.

Descriptions, Host Plants, and Distribution

External and internal morphology of each species was described in detail. The male genitalia of each species were illustrated. Descriptions for catalogued species are often ambiguous, and for this reason we redescribed each species. Descriptions and additional information such as host plants and distribution of each species were taken from specimen labels and the literature.

For easier access to this information, label data were transcribed to a database.

Genus *Amblycerus* Thunberg

Amblycerus Thunberg 1815:121; Bridwell 1932:106; Bridwell 1944:133; Bridwell 1946:53; Bradley 1946:97; Blackwelder 1946:762; Blackwelder and Blackwelder 1948:44; Terán 1967:310,317; Johnson 1968:1268; Bottimer 1968:1012; Kingsolver 1965:29; Kingsolver 1968:280; Kingsolver 1970b:471-472; Whitehead and Kingsolver 1975a:154; Whitehead and Kingsolver 1975b:464; Decelle 1976:326; Stange et al. 1976:112; Johnson 1980:30,31; Kingsolver 1980:230; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1982:6; Borowiec 1987:7,60; Udayagiri and Wadhi 1989:7; Kingsolver 1991:433.

Type species: *Bruchus robiniae* Fabricius 1781:75, by subsequent designation, Bridwell 1930:29.

Size variable, from small to medium, 2.3-10.0 mm. Body subovate, arched in profile. Head subtriangular, densely punctulate, strongly constricted behind eyes; eyes large, convex, facets coarse, emargination at antennal insertion shallow; eyes ovoid or reniform, with very small sinus, frons with well defined carina, impunctate line or smooth, unmarked; antenna strongly serrate distally. Pronotum subcampanulate, trapezoidal, or semicircular, moderately convex; foveolae may cover all of pronotum, be restricted to lateral areas, or be completely absent; with traces of submarginal sulcus on basal margin and anterolateral corners; cervical setae present or absent; proepisternum with or without foveolae; procoxae distinctly separated by intercoxal process; protrochantin distinct. Mesepimeron reaching coxal cavity; mesotrochantin distinct; scutellum distinct, usually elongate, may be finely dentate at apex. Elytron with striae not distorted, tenth stria reaching apex of elytron; metasternum and metepisternum with parasutural sulci parallel to pleurosternal suture; metepisternal sulcus prominent, forming an acute, obtuse or right angle; metatibia without carina, apex with two large calcaria, lateral calcarium usually longer than mesal calcarium. Pygidium oblique to vertical, nearly flat, posterior margin rounded, truncate or sinuate. Male genitalia with dorsal and ventral valves of median lobe articulated with body of lobe; internal sac with variable number of sclerites; lateral lobes fused basally.

Type of the genus.—*Bruchus robiniae* Fabricius 1781:75 (= *Spermophagus robiniae* Gyllenhal 1833:104), by subsequent designation of Bridwell (1930:29).

Key to Species of *Amblycerus* of the United States and Mexico

To identify *Amblycerus* species from the United States and Mexico, the following dichotomous key was constructed. Features used to make the key were the external and internal morphology. Host plants of the species are listed if known.

1	Frons with median linear carina	2
1'	Frons without median linear carina or with an impunctate line	12
2(1)	Pygidium with large central spot	3
2'	Pygidium without central spot	5

3(2) Proepisternum with foveolae, reared from seeds of *Guazum tomentosa* ..... *A. guazumicola* Kingsolver and Johnson

3' Proepisternum without foveolae 4

4(3') Pygidium with foveolae, transverse axis of metepisternal sulcus not reaching lateral margin, eye cleft two-tenths to three-tenths its length by ocular sinus; small paired sclerites in the internal sac elongate-ovate .... *A. sosia* Ribeiro-Costa and Kingsolver

4' Pygidium without foveolae, transverse axis of metepisternal sulcus reaching lateral margin, eye cleft less than two-tenths its length by ocular sinus, small paired sclerites in the internal sac Y-shaped, reared from seeds of *Guazuma ulmifolia* ..... *A. cistelinus* (Gyllenhal)

5(2') Pronotum entirely covered with foveolae 6

5' Pronotum with foveolae only in lateral areas 7

6(5) Proepisternum without foveolae, elytral integument uniformly covered .... *A. ireriae* Romero, Johnson and Kingsolver, new species

6' Proepisternum with foveolae, elytral integument with dark brown spots, ... reared from seeds of *Acacia adansonii, Gleditsia aquatica, G.* ..... *triacanthos,* and *Robinia pseudoacacia* ..... *A. robiniae* (Fabricius)

7(5') Transverse axis of metepisternal sulcus straight 8

7' Transverse axis of metepisternal sulcus curved 9

8(7) Body and legs (except tarsi) and apical seven antennal segments black, first three or four antennal segments, tarsi, and abdomen red or reddish-yellow; lateral calcaria nearly twice as long as mesal calcaria, reared from seeds of *Cordia henriquensi* ..... *A. teutoniensis* Ribeiro-Costa and Kingsolver

8' Body dark red, metepisternum with foveolae, lateral and mesal tibial calcaria subequal in length, reared from seeds of *Cassia atomaria, C. emarginata, C. hintoni, C. mollissima, C. nutans, C. oxyphylla, C. reticulata, Prosopis juliflora* ..... *A. epsilon* Kingsolver

9(7') Metepisternal sulcus forming obtuse angle, female with terminal margin of . pygidium truncate or obtuse 10

9' Metepisternal sulcus forming right angle, female with terminal margin of pygidium bisinuate, reared from seeds of *Caesalpinia cacalaco* .... *A. acapulcensis* Kingsolver

10(9) Metepisternum with foveolae 11

10' Metepisternum without foveolae, lateral calcarium of hind tibia longer than mesal calcarium, reared from seeds of *Caesalpinia* spp., *Cassia alata, C. bicapsularis, C. occidentalis, C. sericea, C. splendida, Cassia* spp. ..... *A. nigromarginatus* (Motschulsky)

11(10) Metepisternum with file, metafemur with angulate tooth on ventral margin,. reared from seeds of *Caesalpinia sclerocarpa* .... *A. stridulator* Kingsolver, Romero N., and Johnson

11' Metepisternum without file, metafemur without tooth, reared from seeds of. *Banisteriopsis cornifolia, Heteropterys beechyana* .... *A. multiflocculus* Kingsolver

12(1') Eyes reniform 13
12' Eyes ovoid 15

13(12) Lateral carina of pronotum bifurcate at apex 14
13' Lateral carina of pronotum not bifurcate at apex .....
..... *A. chiapas* Romero, Johnson, and Kingsolver, new species

14(13) Pygidium with dark, central spot; cervical setae absent; metasternum .....
without foveolae .....
..... *A. veracruz* Romero, Johnson, and Kingsolver, new species
14' Pygidium without dark, central spot; cervical setae present; metasternum ....
with foveolae; reared from seeds of *Cordia dentata, C. panamensis, C. toqueve* ..... *A. championi* (Pic)

15(12') Pygidium with dark central spot 16
15' Pygidium without spot 28

16(15) Pronotum without foveolae 17
16' Pronotum with foveolae 18

17(16) Antennal segments 1-5 and 11 (and sometimes 7) yellowish .....
..... *A. evangelinae* Romero, Johnson, and Kingsolver, new species
17' All antennal segments dark red, reared from seeds of *Cordia alliodora* ..... *A. biolleyi* (Pic)

18(16) Pronotum covered with foveolae only in lateral areas 19
18' Pronotum covered entirely with foveolae, reared from seeds of *Cordia gerascanthus* ..... *A. pygidialis* (Suffrian)

19(18) Transverse axis of metepisternal sulcus straight 20
19' Transverse axis of metepisternal sulcus curved 23

20(19) Metepisternal sulcus forming right angle 21
20' Metepisternal sulcus forming obtuse angle 22

21(20') Antenna with apical portion of last segment yellowish (sometimes the first three antennal segments yellowish), elytron with three yellowish transverse stripes .....
..... *A. hespenheidei* Romero, Johnson, and Kingsolver, new species
21' Antennal segments dark red, elytra without yellowish stripes, reared from seeds of *Cassia alata, C. bicapsularis, C. indecora, C. leptocarpa, C. obtusifolia, C. occidentalis, C. uniflora, C. pendula* .....
..... *A. obscurus* (Sharp)

22(20) Lateral and mesal metatibial calcaria subequal, integument without black spots, cervical sulcus present, reared from seeds of *Cordia alliodora*
..... *A. atkinsoni* Romero, Johnson, and Kingsolver, new species
22' Lateral tibial calcarium longer than mesal, integument with black spots, cervical sulcus absent .....
..... *A. mariae* Romero, Johnson, and Kingsolver, new species

23(19') Scutellar area with dark triangular spot, reared from seeds of *Cordia* spp., *Cordia alliodora* ..... *A. scutellaris* (Sharp)

23' Scutellar area without triangular spot 24

24(23') Proepisternum with foveolae ....*A. guerrerensis* Romero, Johnson, and Kingsolver, new species

24' Proepisternum without foveolae 25

25(24') Head, antenna, scutellum, prosternum, procoxa, mesosternum, mesal region of metasternum, anterior part of metepisternum, metacoxa, basal one-half of metafemur, and first three abdominal sterna black; elytron with large black spot; transverse axis of metepisternal sulcus not reaching lateral margin .... *A. marmoratus* (Sharp)

25' Body red or brown, some structures dark red but not black, transverse axis of metepisternal sulcus reaching lateral margin 26

26(25') Metepisternal sulcus forming right angle, metacoxa with foveolae and cluster of punctures near trochanteral insertion proximate .... *A. anosignatus* (Chevrolat)

26' Metepisternal sulcus forming an obtuse angle, metacoxa with foveolae and cluster of punctures near trochanteral insertion contiguous or nearly so 27

27(26') Eye cleft two-tenths to three-tenths its length by ocular sinus, cervical sulcus distinct, male genitalia with saccal sclerites as in figure 9, reared from seeds of *Cordia gerascanthus* ....*A. baracoensis* Kingsolver

27' Eye cleft more than three-tenths its length by ocular sinus, cervical sulcus indistinct, male genitalia with saccal sclerites as in figure 15 ..... *A. cerdanicola* Kingsolver

28(15') Metepisternum with file, metafemur with angulate tooth on ventral margin, reared from seeds of *Drypetes laterifolia* ....*A. eustrophoides* (Schaeffer)

28' Metepisternum without file, metafemur without tooth 29

29(28') Pronotum with some foveolae, ranging from some in lateral areas to being completely covered 30

29' Pronotum without foveolae, reared from seeds of *Ceratonia siliqua, Gossypium* spp., *Prosopis* spp., *P. juliflora* ..... *A. piurae* (Pierce)

30(29) Pronotum covered entirely with foveolae; proepisternum with foveolae 31

30' Pronotum with foveolae only in lateral areas; proepisternum without foveolae 36

31(30) Transverse axis of metepisternal sulcus not reaching lateral margin 32
31' Transverse axis of metepisternal sulcus reaching lateral margin 34

32(31') Metasternum without foveolae; metacoxa with foveolae and cluster of punctures near trochanteral insertion contiguous or nearly so,reared from seeds of *Vitis arizonica* ..... *A. vitis* (Schaeffer)
32' Metasternum with foveolae 33

33(32') Metepisternal sulcus forming right angle; metacoxa with foveolae and cluster of punctures proximate ..... *A. alternatus* (Pic)
33' Metepisternal sulcus forming obtuse angle; metacoxa with foveolae and cluster of punctures not proximate, reared from seeds of *Hippomane mancinella, Ricinus communis, Tectona grandis* .... *A. schwarzi* Kingsolver

34(31) Elytral intervals with faint stripes of dense whitish pubescence; transverse axis of metepisternal sulcus straight 35
34' Elytra with four dashed stripes of dense yellowish pubescence; transverse axis of metepisternal sulcus curved ..... *A. serieguttatus* (Chevrolat)

35(34) Internal sac with two thorn-shaped sclerites basally (figure 73), reared from seeds of *Cordia dodecandra, Hippomane mancinella, Spondias mombin, S. radlkoferi, Ziziphus mexicanus* ..... *A. spondiae* Kingsolver
35' Without thorn-shaped sclerites in internal sac, with pair of plates basally (figure 23) .... *A. cuernavacensis* Romero, Johnson, and Kingsolver, new species

36(30') Antenna with last six or seven segments black, clothed with black hairs 37
36' Antenna with last six or seven segments brown or dark but not black, clothed with whitish hairs 38

37(36) Pygidium covered with foveolae, internal sac with wishbone-shaped sclerite tridentate apically (figure 50) ..... *A. pictus* (Sharp)
37' Pygidium without foveolae, internal sac with wishbone-shaped sclerite not tridentate apically (figure 11), reared from seeds of *Barcena guanajuatensis, Colubrina triflora* ..... *A. barcenae* (Dugès)

38(36') Metepisternum without foveolae 39
38' Metepisternum with foveolae 40

39(38) Internal sac with wishbone-shaped sclerite (figures 48, 54) 41
39' Internal sac without wishbone-shaped sclerite (figure 44), reared from seeds of *Caesalpinia* spp., *Cassia alata, C. bicapsularis, C. occidentalis, C. sericea, C. splendida, Cassia* spp. .... *A. nigromarginatus* (Motschulsky)

40(38') Internal sac with one H-shaped sclerite and four spiny sclerites (figure 42), reared from seeds of *Banisteriopsis cornifolia, Heteropterys beechyana* ..... *A. multiflocculus* Kingsolver
40' Internal sac not as above 42

41(39) Hind femur with foveolae, mesal region of abdomen without fine long setae, length (pronotum-elytra) 3.2 to 5.6 mm, reared from seeds of *Desmodium cinereum* ..... *A. perfectus* (Sharp)

41' Hind femur without foveolae, mesal region of abdomen with fine long setae, length (pronotum-elytra) 5.9 to 7.6 mm; reared from seeds of *Pterocarpus rohrii* ..... *A. pterocarpae* Kingsolver

42(41') Internal sac with boat-shaped sclerite with apical emargination (figure 61), reared from seeds of *Prosopis juliflora* ..... *A. sallei* (Jekel)

42' Internal sac with boat-shaped sclerite without apical emargination (figure 25), reared from seeds of *Cassia atomaria, C. emarginata, C. hintoni, C. mollissima, C. nutans, C. oxyphylla, C. reticulata, Prosopis juliflora* ..... *A. epsilon* Kingsolver

Species Groups

This is the first attempt to form species groups in this genus. Because only about 35 percent of *Amblycerus* species are included, the species groups undoubtedly will be modified in the future. The groups are arranged in a sequence that we consider to represent their evolutionary relationships (Appendix 1).

Pterocarpae Group. The only species in this group, *A. pterocarpae,* has a uniform pattern of pubescence and lacks stripes or variegated patterns. It has foveolae on the pygidium, a cervical sulcus, cervical setae, metepisternal sulcus forming a right angle, transverse axis of metepisternal sulcus curved, and absence of foveolae on the proepisternum, metepisternum, metasternum, and hind femur. A combination of these characters, presence of foveolae on the pronotum only in the lateral margins, and shape and number of sclerites in the internal sac in the male genitalia sequester this species in a separate group. Kingsolver (1980) reported *A. pterocarpae* to feed in *Pterocarpus rohrii* (Leguminosae).

Piurae Group. This group has only *A. piurae,* which shares some features with *A. pterocarpae,* such as the presence of a cervical sulcus, cervical setae, absence of foveolae on the proepisternum, metasternum, metepisternum, and hind femur; metepisternal sulcus forming a right angle, and absence of a frontal carina. *A. piurae* has hairs of only one color, not forming stripes or a patchy pattern. However, there is sometimes a weak median stripe on the pygidium. Characters that isolate this species are the lack of foveolae on the pronotum and the presence of a basal, rounded, and finely multituberculate sclerite in the male genitalia (figure 52). *A. piurae* has been reported to feed on *Prosopis juliflora* (Leguminosae), cultivated *Gossypium* spp. (Malvaceae) and *Ceratonia siliqua* (Leguminosae). The latter two records are improbable and most certainly should be verified.

Epsilon Group. The two species in this group, *A. epsilon* and *A. sallei,* share the following characteristics: foveolae cover only the lateral areas of the pronotum, the lateral carina of the pronotum does not reach the cervical sulcus, the proepisternum and metasternum lack foveolae, and the pygidium has a median, linear stripe of dense

pubescence. The number and shape of sclerites in the internal sac of the male genitalia have many similarities (figures 25, 61) but are distinguished by the shape of the median sclerite of the internal sac. *Amblycerus epsilon* is reported to feed in the following Leguminosae: *Prosopis juliflora, Cassia atomaria, C. emarginata, C. hintoni, C. nutans, C. oxyphylla,* and *C. reticulata. Amblycerus sallei* is only reported to feed in *Prosopis juliflora.* This latter host is shared by *A. epsilon* and *A. piurae.* The presence of a common host in *A. epsilon* and *A. piurae* is a similarity between the Piurae group and the Epsilon group.

Multiflocculus Group. The only species in this group, *A. multiflocculus,* shares with the Spondiae group the following: metasternum and hind femur without foveolae, a cervical sulcus and cervical setae present, proepisternum and metepisternum with foveolae, metepisternal sulcus forming an obtuse angle, and spinules present in the in ternal sac. However, this species is isolated by the characteristic, tufted pattern of pubescence, the presence of foveolae only on the lateral margins of the pronotum, and by the number and shape of the sclerites in the internal sac of male genitalia (figure 42). This species is reported to feed only in the Malpighiaceae.

Spondiae Group. The three species in this group, *A. spondiae, A. cuernavacensis,* and *A. vitis,* have the entire pronotum covered with foveolae, the metasternum lacking foveolae, the transverse axis of the metepisternal sulcus not reaching the margin of the metepisternum, and the metepisternal sulcus forming an obtuse angle. They share spinules, and number and general shape of the sclerites in the internal sac of the male genitalia (figures 23, 73, 82), especially a complex, median, elongate sclerite with serrate ridges in the internal sac. This group shares the presence of spinules in the internal sac with the Alternatus group.

In this group, *A. spondiae* has the widest range of host plants, feeding on plants from four different families: Euphorbiaceae, Anacardiaceae, Rhamnaceae, and Boraginaceae (Appendixes 2, 3). The other two species in the group are *A. vitis,* which feeds only in *Vitis arizonica* (Vitaceae), and *A. cuernavacensis,* whose host is unknown.

Alternatus Group. Members of this group, *A. eustrophoides, A. serieguttatus, A. alternatus,* and *A. schwarzi,* share the following features with the Spondiae group: pronotum covered entirely with foveolae, presence of a cervical sulcus and cervical setae, presence of foveolae on the proepisternum and metepisternum, and spinules in the internal sac. The male genitalia of *A. alternatus* have a complex, median, elongate sclerite with serrated ridges, similar to that found in the Spondiae group species. Species in the Alternatus group have in common foveolae on the metasternum and a median linear stripe of dense pubescence on the pygidium; the color of pubescence is similar and the number and shape of sclerites in the internal sac are also similar (figures 3, 27, 63, 69). *A. eustrophoides* feeds in *Drypetes laterifolia* (Euphorbiaceae); *A. schwarzi* questionably feeds in *Ricinus communis* (Euphorbiaceae) and *Tectona grandis* (Verbenaceae). The other two species in this group, *A. serieguttatus* and *A. alternatus,* do not have host plants reported in the literature.

Robiniae Group. The three species in this group share the following features: presence of foveolae on the hind femur, the apical margin of the pygidium bisinuate in females, the head with a frontal carina, and spinules in the internal sac. *A. acapulcensis* and *A. robiniae* are much more closely related to each other than to *A. ireriae,* indicated by the similarity in vestiture, integument, and sclerites in the internal sac.

A. acapulcensis and *A. robiniae* feed in host plants in the family Leguminosae (Appendixes 2, 3). Host plants of *A. ireriae* are unknown. Species in the Robiniae group are related to the Alternatus group by the presence of a cervical sulcus, cervical setae, and foveolae on the metasternum, metepisternum, and pygidium.

Perfectus Group. This group includes only *A. perfectus.* This species lacks foveolae on the metasternum, metepisternum, and hind femur and the apical margin of the pygidium is rounded with a median linear stripe. The internal sac of the male genitalia has an apical tube-shaped sclerite and some median, small, angular sclerites. This group shares with the Piurae group a frontal carina, the metepisternal sulcus forming a right angle, and the straight transverse axis of the metepisternal sulcus. The median, long, spiny sclerites of the internal sac of the male genitalia are similar to the sclerites in *A. piurae. A. perfectus* feeds on *Combretum farinosum* and questionably *Desmodium cinereum* (Appendixes 2, 3).

Obscurus Group. This group is composed of *A. obscurus* and *A. nigromarginatus,* species that are very closely related because they have almost the same type and pattern of vestiture and similar external morphology. The number and shape of the sclerites in the internal sac are similar except for the quantity of spinules lining the internal sac, the presence of clusters of setae, and the size of the basal sclerites (figures 44, 46). Species of the Obscurus group are closely related to the Stridulator group by the following: foveolae covering only lateral margins of the pronotum, cervical sulcus and cervical setae present, foveolae on the metasternum and hind femur absent, the lateral margins of the median lobe of the male genitalia sinuate, spiny sclerites in the internal sac, mottled pattern of vestiture, and host plants in common. *Amblycerus obscurus* feeds on *Cassia indecora, C. leptocarpa, C. obtusifolia,* and *C. pendula. Amblycerus nigromarginatus* feeds on *Caesalpinia* spp., *Cassia sericea,* and *C. splendida.* Both species share the hosts *Cassia alata, C. bicapsularis,* and *C. occidentalis.*

Stridulator Group. The unique species in this group, *A. stridulator,* shares with the Anosignatus group foveolae covering only the lateral areas of the pronotum, the lateral carina of the pronotum reaching the cervical sulcus, foveolae lacking on the metasternum and hind femur, curved transverse axis of the metepisternal sulcus, and three different colors of vestiture. *A. stridulator* has foveolae on the metepisternum, the sinuate lateral margins of the median lobe of the genitalia, and characteristic sclerites in the internal sac (figure 75). This species has been reported to feed only in *Caesalpinia sclerocarpa* (Leguminosae).

Anosignatus Group. The Anosignatus group is composed of *A. anosignatus, A. guerrerensis,* and *A. chiapas.* All lack foveolae on the metasternum and metepisternum and a frontal carina. The internal sac of the male genitalia has a pair of thin, tuberculate plates, but in *A. chiapas* the plates are slightly reduced (figure 19). Host plants for these species are unknown. Species of this group share the following features with the Cistelinus group: pygidium with oval, central spot, presence of a cervical sulcus and cervical setae, and mottled vestiture of at least three different colors.

Cistelinus Group. This group contains *A. cistelinus, A. sosia,* and *A. guazumicola.* They have in common the following features: a central, oval spot on the pygidium; foveolae on the metasternum, metepisternum, and pygidium; integument with scattered, small, black spots; and the body with a characteristic pattern of pubescence. Sclerites in the internal sac ally *A. sosia* and *A. cistelinus* (figures 21, 71) more to each other than to *A. guazumicola* (figure 31). Host plants are known only for *A. cistelinus* and *A. guazumicola,* which feed in the seeds of *Guazuma ulmifolia* (Sterculiaceae) (Appendixes 2, 3). Freese (1983) reported that capuchin monkeys feed on larvae of *Amblycerus centralis* (a junior synonym of *A. cistelinus*) in fruits of *Apeiba membranacea.* Kingsolver (1991) commented that the beetle larvae were most likely *A. whiteheadi* Kingsolver, a species known to feed in seeds of *Apeiba membranacea.*

Marmoratus Group. Four species, *A. marmoratus, A. barcenae, A. pictus,* and *A. hespenheidei,* make up this group and are characterized by the lack of foveolae on the proepisternum, metasternum, metepisternum, and hind femur. They also lack a carina on the frons. At least six antennal segments are black, and the body has a strong, mottled pattern of pubescence. Sclerites in the internal sac are more similar in *A. pictus* and *A. barcenae* (figures 11, 50) than either is to *A. hespenheidei* (figure 35) or *A. marmoratus* (figure 40). Only *A. barcenae* has known hosts, *Barcena guanajuatensis* and *Colubrina triflora* (Rhamnaceae) (Appendixes 2, 3).

Championi Group. The three members of this group, *A. championi, A. teutoniensis,* and *A. evangelinae,* are characterized by the following: the transverse axis of the metepisternal sulcus is straight, the metepisternal sulcus forms an obtuse angle, a frontal carina is lacking, the eyes are reniform, the pygidium has some scattered spots, the major part of integument is black, and the pubescence is mottled. *A. championi* feeds on *Cordia panamensis* and *C. toqueve; A. teutoniensis* feeds on *Cordia henriquensi* (Boraginaceae) (Appendixes 2, 3). Hosts are unknown for *A. evangelinae.*

Scutellaris Group. This group of eight species (*A. scutellaris, A. atkinsoni, A. cerdanicola, A. baracoensis, A. veracruz, A. mariae, A. pygidialis,* and *A. biolleyi*) is characterized by the following: absence of a frontal carina; all antennal segments brown; presence of foveolae only on the lateral margins of the pronotum; absence of foveolae on the metasternum, metepisternum, and hind femur; lateral tibial calcarium straight; and pygidium with an oval, central spot. There is wide variation in the sclerites of the internal sac. All, however, have a pair of large sclerites with one of its lateral margins serrate (figures 7, 9, 13, 15, 38, 56, 66, 80).

Host plants are known only for *A. atkinsoni, A. baracoensis, A. biolleyi, A. mariae, A. pygidialis,* and *A. scutellaris,* and all feed in seeds of the genus *Cordia* (Boraginaceae) (Appendixes 2, 3). That five of seven species of this group feed in seeds of *Cordia* is significant. Not only do these species resemble each other in their morphology but in their ecology as well. Host plants for *A. veracruz* and *A. cerdanicola* are unknown. *A. cerdanicola* has been collected from farms of *Cordia alliodora* and may feed in that plant.

Host Plants and Distribution

Of 40 species of *Amblycerus* found in United States and Mexico, only 27 are reliably reported from hosts. These species feed in 54 different species of host plants, which belong to eleven families. The percent of host species fed upon in each family are as follows: Leguminosae (53.7 percent), Boraginaceae (16.7 percent), Rhamnaceae (5.6 percent), Euphorbiaceae (5.6 percent), Sterculiaceae (3.7 percent), Malpighiaceae (3.7 percent), Anacardiaceae (3.7 percent), Combretaceae (1.8 percent), Malvaceae (1.8 percent), Verbenaceae (1.8 percent), and Vitaceae (1.8 percent).

Each of the following species has only one known host plant that we consider to be valid: *Amblycerus acapulcensis, A. atkinsoni, A. baracoensis, A. biolleyi, A. cerdanicola, A. cistelinus, A. eustrophoides, A. guazumicola, A. mariae, A. pterocarpae, A. sallei, A. stridulator, A. teutoniensis,* and *A. vitis* (Appendixes 2, 3).

Other species, such as *A. epsilon, A. nigromarginatus* and *A. obscurus* (Appendixes 2, 3), are polyphagous and may feed in the seeds of up to nine hosts, mostly in *Cassia* and all in the Leguminosae.

Another species, *A. spondiae,* has been reported to use four different families of hosts. If these records are valid, then *A. spondiae* feeds in the seeds of more families than any other species of Bruchidae. Most Bruchidae use one family as hosts and one to three species in the same genus as hosts. Occasionally two genera of hosts are fed upon by a bruchid. An extreme case of utilization of many genera and species of hosts by bruchids, however, is both *Stator limbatus* (Horn) and *S. pruininus* (Horn), which feed in the seeds of over 50 species of Leguminosae in nature (Siemens et al. 1991).

Amblycerus eustrophoides, A. sosia, A. ireriae, A. nigromarginatus, A. robiniae, A. schwarzi, and *A. vitis* are reported from the United States (Appendix 5). Kingsolver (1970b) states that *A. eustrophoides,* according to distribution records, may have been brought by man from Mexico. *Amblycerus sosia* was described from Brazil, French Guiana, and Colombia, but a report from Florida is probably an introduction. *A. ireriae* is known only from Texas. *A. nigromarginatus* has the widest distribution, from the United States to Brazil. This is in contrast to *A. vitis* which is reported only from Arizona and Texas, feeding exclusively in *Vitis arizonica.* Johnson and Kingsolver (1975), however, suggest that it may also be present in northern Mexico.

Amblycerus acapulcensis, A. atkinsoni, A. barcenae, A. cuernavacensis, A. evangelinae, A. guazumicola, A. stridulator, and *A. veracruz* are restricted to Mexico. The other species occur in Mexico and Central and South America (Appendix 5).

Species of *Amblycerus*

Amblycerus acapulcensis Kingsolver

In the synonymical bibliographies of each species, the type locality and location of the type is in parentheses following the citation of the original description. A summary of synonymies of these species is in Appendix 4.

Amblycerus acapulcensis Kingsolver 1975:33 (Holotype: Mexico. Cerro Gordo, Veracruz; USNMNH); Pfaffenberger and Johnson 1976:32; Terán and Muruaga de L'Argentier 1979:453; Pfaffenberger 1979:229; Terán 1984:213; Pfaffenberger 1985:2; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:7.

Male

Integument Color. Red to dark red; occasionally with black spots on head, pronotum, elytra, metasternum, metepisternum, metacoxa, abdomen and pygidium, black spots variable in size; eyes dark red to black.

Vestiture. Body covered with golden hairs; small, irregular spots of white hairs may be present on head pronotum, elytron, sterna, hind leg, abdomen, and pygidium.

Head. Elongated, densely punctulate; frons with median linear carina extending from frontoclypeal suture to near vertex. Eye ovoid, cleft to one-third its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two and one-half times as long as 2nd; 3rd segment one and one-half times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with punctures except in short band on apical margin. Labrum with row of punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate, with deep foveolae scattered over surface, except on medial longitudinal line; pronotum with prominent lateral carina reaching cervical sulcus; cervical sulcus faint and short, not reaching dorsal midline, with three cervical setae. Prosternum flat, constricted between coxae, carinate laterally, curved apically, and rounded at apex; proepisternum finely punctulate, with foveolae on apical one-half.

Mesothorax and Metathorax. Scutellum elongate and finely punctulate, with small tooth at apex. Elytron about three times as long as broad; striae regular, moderately impressed and punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal portion with a mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate with fine foveolae scattered over surface; median sulcus of metasternum one-fourth to one-half as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, with fine foveolae over surface, without transverse, fusiform curved and striate file; metepisternal sulcus forming slightly obtuse angle, with transverse axis slightly curved apically and not reaching dorsal margin of metepisternum. Middle and hind legs with

femur mostly punctulate but with scattered foveolae; surface of hind coxa punctulate, densely foveolate and setose in lateral two-thirds and along posterior border, remaining one-third polished and impunctate, except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, one-half as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate, with scattered foveolae; pygidium with apical margin rounded; surface finely punctulate, with scattered foveolae.

Size. Length (pronotum-elytra) 4.8-7.8 mm. Width 2.6-4.7 mm. Maximum thoracic depth 1.8-3.5 mm.

Genitalia (figures 1, 2). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and concave at base; armature of internal sac with two elongate, median sclerites; one median sclerite horseshoelike and two smaller apical V-shaped sclerites; about basal one-half of internal sac lined with many fine spinules (figure 1). Lateral lobes cleft to about one-third their length (figure 2).

Female

Similar to male except apical margin of pygidium bisinuate.

Size. Length (pronotum-elytra) 4.2-7.5 mm. Width 2.4-4.4 mm. Maximum thoracic depth 1.8-3.2 mm.

Host Plants

Old Record: *Caesalpinia cacalaco* Humb. and Bonpl.: Kingsolver 1975:34; Pfaffenberger and Johnson 1976:33; Hetz and Johnson 1988:135; Udayagiri and Wadhi 1989:7.

New Record: None

Distribution

Mexico (Kingsolver 1975).

Discussion

Amblycerus acapulcensis is closely related to *A. robiniae.* In both, the external morphology is similar and the number of sclerites in the internal sac is reduced in comparison with other species. Differences in shape of the sclerites of the genitalia separate them. *A. acapulcensis* and *A. robiniae* together with *A. ireriae* form the Robiniae group. Host plants of *A. acapulcensis* and *A. robiniae* are in the family Leguminosae.

Amblycerus alternatus (Pic)

Spermophagus alternatus Pic 1954b:13-16 (Type: Colombie; Muséum National d'Histoire Naturelle, Paris).
Amblycerus alternatus: Kingsolver 1980:241.

Male

Integument Color. Uniformly red or dark red; eyes silvery to black.

Vestiture. Body covered with white hairs; pronotum with median longitudinal stripe, one very short, weak stripe on each side of median stripe; elytron with ten, long faint stripes, one short stripe on lateral margin; pygidium with median longitudinal stripe.

Head. Subtriangular, densely punctulate; frons with weak median linear carina scarcely reaching frontoclypeal suture. Eye ovoid, cleft to one-fourth its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two times as long as 2nd; 3rd segment one and three-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with fine punctures and some scattered larger, deeper punctures. Labrum with row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum finely punctulate and covered with deep foveolae, a golden hair originating from each foveola; pronotum with lateral carina not reaching cervical sulcus; cervical sulcus very faint, extending dorsad almost to mid-line, with two cervical setae. Prosternum flat, punctulate, constricted between coxae, carinate laterally; proepisternum finely punctulate with foveolae on surface.

Mesothorax and Metathorax. Scutellum elongate, finely punctulate, slightly carinate on lateral margins, with small tooth at apex. Elytron about three times as long as broad; striae regular, moderately impressed and punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal portion, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate with very few foveolae on mesal region. Median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, with fine foveolae over surface, without transverse, fusiform curved and striate file; metepisternal sulcus forming obtuse angle, with transverse axis straight and without reaching lateral margin of metepisternum. Middle and hind legs with femur mostly punctulate, without foveolae; surface of hind coxa densely punctulate, deeply foveolate, and densely setose in lateral one-half and along posterior border, remaining one-half polished and impunctate, except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium one-half as long as basitarsus, slightly arcuate; mesal calcarium one-half as long as lateral calcarium. Hind basitarsus with small spur at apex.

Abdomen. Sterna and pygidium finely punctulate with few scattered foveolae; pygidium with terminal margin rounded.

Size. Length (pronotum-elytra) 3.6-5.9 mm. Width 2.0-3.3 mm. Maximum thoracic depth 1.7-2.6 mm.

Genitalia (figures 3, 4). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and concave at base; armature of internal sac with two basal, subtriangular sclerites, each with obscure and rugose knob; two medial, short, subelliptic, serrate sclerites; median wishbone-shaped sclerite; two subrectangular, thin plates; about medial one-half of internal sac lined with many spinules (figure 3). Lateral lobes cleft to about one-tenth their length (figure 4).

Female

Similar to male.

Size. Length (pronotum-elytra) 4.1 mm. Width 2.3 mm. Maximum thoracic depth 2.0 mm.

Host Plants

Unknown.

Distribution

Old Record: Colombia (Pic 1954b).

New Records: Honduras, Mexico, Panama.

Discussion

A. alternatus shares some features with *A. serieguttatus* and *A. eustrophoides,* and they form the Alternatus species group. However, the shape and number of sclerites in the internal sac of *A. alternatus* links this species with *A. spondiae,* which is in the Spondiae group. We infer that this shows a relationship between these two species groups.

Amblycerus anosignatus (Chevrolat)

Spermophagus anosignatus Chevrolat 1877:125 (Type: Brasilia, Rio-Janeiro; Naturhistoriska Riksmuseet, Sweden).
Amblycerus anosignatus: Blackwelder 1946:762; Udayagiri and Wadhi 1989:7.

Male

Integument Color. Red or dark; head, pronotum, mesosternum, metasternum, small area on anterior and posterior region of elytron, metacoxa, and metafemur very dark red; pygidium with small, central, irregular dark spots; eyes silvery to dark red.

Vestiture. Head covered with fine whitish pubescence; pronotum clothed principally with whitish hairs with some scattered patches of dense whitish and yellowish hairs; scutellum covered with dense whitish hairs; elytron with whitish and orange hairs forming fine mottled pattern, scattered minute spots of black hairs may be present; one-tenth of posterior portion clothed with black hairs; ventral region with whitish and yellowish hairs forming faint mottled pattern; metepisternum with central spot of brownish hairs; pygidium with central, irregular spot of dark to black hairs, bordered with band of whitish hairs, anterior margin with two spots of dense dark to black hairs, in some specimens these coalesce to form hourglass-shaped spot.

Head. Elongated, densely punctulate; frons without frontal carina, sometimes with short impunctate line. Eye ovoid, cleft to one-fourth its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two and four-tenths times as long as 2nd; 3rd segment one and two-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with deep punctures. Labrum with row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate with deep foveolae only on lateral areas; lateral carina reaching cervical sulcus; cervical sulcus fine, extending dorsad almost to midline, with three cervical setae. Prosternum flat, constricted between coxae, carinate laterally and rounded at apex; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, densely setose, slightly constricted laterally, one and six-tenths times as long as wide, tridentate at apex. Elytron two and seven-tenths times as long as broad; striae regular, moderately impressed and deeply punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum one-half as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum finely punctulate, without foveolae and without transverse, fusiform curved and striate file; metepisternal sulcus forming right angle, with transverse axis slightly curved and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate without foveolae; surface of hind coxa densely punctulate, finely foveolate and setose in lateral one-half and along posterior

border, remaining one-half polished and impunctate, except for a small cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium curved, three-fourths as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate, each with fine foveolae on lateral areas; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, with some fine foveolae.

Size. Length (pronotum-elytra) 3.4-3.7 mm. Width 1.9-2.2 mm. Maximum thoracic depth 1.6-1.8 mm.

Genitalia (figures 5, 6). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex; dorsal valve slightly narrower and concave at base; armature of internal sac with two basal, thin, falcate sclerites, mesal area with many fine spines; two median blades with one-third of their right margin dentate; one wishbone-shaped sclerite (figure 5). Lateral lobes cleft to one-fourth their length (figure 6).

Female

Similar to male except 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 3.6 mm. Width 2.1 mm. Maximum thoracic depth 1.6 mm.

Host Plants

Unknown.

Distribution

Old Records: Belize, Brazil, Guatemala, Mexico, Panama (Johnson and Kingsolver 1981).

Discussion

A. anosignatus is closely related to *A. guerrerensis* and *A. chiapas*. The latter two species have in common a pair of thin plates with small tubercles in the internal sac. Despite their close relationship, they are easily segregated by the patterns of pubescence, and the shape of the other sclerites in the internal sac. The three species form the Anosignatus group. No host plants are known for species in this group.

Amblycerus atkinsoni Romero, Johnson, and Kingsolver, new species

Male

Integument Color. Uniformly red or dark red; eyes black.

Vestiture. Head and pronotum with mixed white and golden hairs; scutellum covered with white hairs; elytron with white, golden, and brown hairs forming small patches; posterior area of elytron (one-third of length) covered principally with brown hairs; prosternum, mesosternum, metasternum, and legs with mixed white and golden hairs; abdomen covered with mixed white and golden hairs, each sternum with spot of white hairs on each lateral area; pygidium with large central spot of brown hairs, three smaller lateral spots of white hairs.

Head. Elongated, covered with fine punctures; frons without median linear carina. Eye ovoid, cleft to one-fourth to one-third its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two times as long as 2nd; 3rd segment one and four-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with punctures. Labrum with row of punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; pronotum with lateral carina faint, not reaching cervical sulcus; cervical sulcus very faint with two cervical setae. Dorsal surface of pronotum punctulate with foveolae concentrated only on lateral areas. Prosternum flat, constricted between coxae, and slightly curved apically; proepisternum finely punctulate without foveolae.

Mesothorax and Metathorax. Scutellum elongate, finely punctulate, tridentate apically. Elytron about two and seven-tenths as long as broad; striae regular, well impressed and without punctures; strial intervals finely punctured. Mesosternum finely punctulate, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum four-tenths length of metasternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin at level of trochanteral insertion. Metepisternum punctulate, without foveolae and without transverse, fusiform curved and striate file; metepisternal sulcus forming obtuse angle, with transverse axis straight and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, finely foveolate, and setose in lateral two-thirds and along posterior border, remaining one-third polished and impunctate, except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium straight, four-tenths as long as basitarsus; mesal calcarium subequal to lateral calcarium.

Abdomen. Sterna finely punctulate; pygidium with fine punctures, without foveolae, terminal margin rounded.

Size. Length (pronotum-elytra) 3.0-3.9 mm. Width 1.7-2.2 mm. Maximum thoracic depth 1.3-1.7 mm.

Genitalia (figures 7, 8). Median lobe slightly constricted on lateral margins and wider on basal portion; ventral valve acuminate at apex; dorsal valve narrower, concave at base, slightly arcuate in lateral view; armature of internal sac with two large basal sclerites, with series of spines of irregular size on their apical portion; two spindle-shaped median sclerites with dorsal margins dentate; medial wishbone-shaped sclerite, and two small, pyramid-shaped apical sclerites; medial cluster of spines (figure 7). Lateral lobes cleft to fifteen-hundredths their length, cleft broad with two pads on its anterior margin (figure 8).

Female

Similar to male.

Size. Length (pronotum-elytra) 3.2-3.6 mm. Width 1.8-2.1 mm. Maximum thoracic depth 1.5-1.7 mm.

Host Plants

Cordia alliodora (Ruiz and Pavan): ***Mexico.*** Jalisco: Estación de Biología, Chamela, IV-19-85, T.H. Atkinson (THA 259).

Type Series

Male holotype and one paratype: *Mexico.* Jalisco: Estación de Biología, Chamela, IV-19-85, reared in seeds of Cordia alliodora, T. H. Atkinson collector (THA 259).

Female allotype: *Mexico.* Jalisco: Estación de Biologíca, UNAM, bl + mv, 19 July 1987, R. Turnbow collector.

One paratype: *Mexico.* Jalisco: 37.4 km. S Chamela, 17 July 1987, R. Turnbow collector.

Holotype deposited in the Universidad Nacional Autonoma de Mexico Collection, Mexico, D.F. Allotype and one paratype deposited in the USNMNH. One paratype each deposited in the TUR collection, the CDJ collection, and the J. Romero collection.

Distribution

Mexico.

Discussion

This species has a distinctive pattern of pubescence and can be distinguished easily from other *Amblycerus* because of the presence in the internal sac of a pair of basal large sclerites bearing a series of spines of irregular size on their apical portion.

A. atkinsoni is placed in the Scutellaris group. *A. atkinsoni* is closely related to *A. cerdanicola* because of its external morphology and similarities in sclerites in the internal sac. It feeds on species of *Cordia,* as do other species in the Scutellaris group.

Etymology

This species is named to honor our good friend, Tom H. Atkinson.

Amblycerus baracoensis Kingsolver

Amblycerus baracoensis Kingsolver 1970b:484; emended from *baracoenis* (Kingsolver 1981:443) (Holotype: Cuba. Baracoa; USNMNH); Janzen 1980:947; Johnson and Kingsolver 1981:410.
A. baracoenis: incorrect original spelling; Udayagiri and Wadhi 1989:7.

Male

Integument Color. Uniformly reddish with antennae, tarsi, and lateral margins of elytron yellowish red; some specimens with hind legs darker red than remainder of body; eyes piceous or silvery.

Vestiture. Body covered with whitish and brownish hairs arranged in fine mottled pattern, abdominal segments with one spot of dense whitish hairs on lateral areas; pygidium with one large, oval, central spot flanked by whitish hairs.

Head. Subtriangular, densely punctulate; frons smooth, without median linear carina or impunctate median line. Eye ovoid, cleft to two-tenths its length by ocular sinus; medial margin of eye with row of long, fine, golden hairs. First segment of antenna two and one-half times as long as 2nd; 3rd segment one and six-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with punctures. Labrum with row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; dorsal surface of pronotum punctulate with fine foveolae on lateral areas; carina on lateral margin reaching anterior margin of pronotum; three cervical setae. Prosternum flat, constricted between coxae, carinate laterally and rounded at apex; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, sparsely setose, two times as long as wide, tridentate at apex. Elytron two and seven-tenths times as long as broad; striae regular, moderately impressed and punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate without foveolae. Metasternum finely punctulate, without foveolae; median sulcus of metasternum one-third as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum finely punctulate, without foveolae and without transverse, fusiform curved and striate file; metepisternal sulcus forming slightly obtuse angle, with transverse axis curved and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate and setose in lateral two-thirds, mesal one-third polished and impunctate, except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures contiguous or nearly so; metafemur without angulate tooth on ventral margin; lateral tibial calcarium almost straight, one-half as long as basitarsus; mesal calcarium two-thirds as long as lateral calcarium.

Abdomen. Sterna finely punctulate, 1st to 4th sterna with sinuate row of foveolae; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, without foveolae.

Size. Length (pronotum-elytra) 4.2-5.0 mm. Width 2.5-2.9 mm. Maximum thoracic depth 1.9-2.4 mm.

Genitalia (figures 9, 10). Median lobe with lateral margins parallel or nearly so; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and strongly concave at base; armature of internal sac with a campanulate basal sclerite; median wishbone-shaped sclerite, flanked on either side by a blade with outer margin serrate, and two lateral spine-shaped sclerites with tooth on lateral margin near apex; internal sac lined with two clusters of setae, one bordering campanulate sclerite and a smaller cluster over wishbone (figure 9). Lateral lobes cleft to one-tenth their length, clothed with fine pubescence; a pair of pads between lateral lobes near apex (figure 10).

Female

Similar to male except 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 4.3-4.7 mm. Width 2.6-2.8 mm. Maximum thoracic depth 1.9-2.2 mm.

Host Plants

Old Record: *Cordia gerascanthus* L.: Janzen 1980:947; Udayagiri and Wadhi 1989:8.

New Record: None

Distribution

Old Record: Cuba (Kingsolver 1970b:484).

New Records: Costa Rica, Mexico, Paraguay.

Discussion

A. baracoensis was initially recorded only from Cuba, but its distribution is much wider. *A. baracoensis* is closely related to *A. cerdanicola,* and both are in the Scutellaris group. The external morphology of the two species is similar, as are some sclerites in the internal sac, especially the basal sclerite with a campanulate shape. *A. baracoensis* feeds in seeds of *Cordia.*

Amblycerus barcenae (Dugès)

Bruchus barcenae Dugès 1880:37 (Type: Mexico; Institut Royal Sciences, Brussels, Belgium).
Bruchus barcaenae (sic): Zacher 1952:461.
Spermophagus barcenae: Sharp 1885:502.
Spermophagus barcaenae (sic): Zacher 1952:468.
Amblycerus barcenae: Blackwelder 1946:762; Johnson and Kingsolver 1981:410.

Male

Integument Color. Body brownish, but with darker color on metasternum, metepisternum, metacoxa, metafemur; abdominal segments sometimes darker also; pygidium with irregular obscure spot; some or all segments of maxillary palpus and labial palpus obscure to black; apical six segments of antenna black, segments four and five may be black or partially black; eyes black or piceous.

Vestiture. Body covered with golden hairs; sometimes pronotum, elytron, and metepisternum with small, scattered spots of black hairs.

Head. Elongated, densely punctulate; frons without median linear carina. Eye ovoid, cleft to one-fourth its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna one and six-tenths times as long as 2nd; 3rd segment one and four-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus and labrum punctate.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; dorsal surface of pronotum punctulate with few fine foveolae on lateral areas of base; lateral carina reaching cervical sulcus, cervical sulcus fine, extending slightly dorsad with two cervical setae. Proepisternum finely punctulate, without foveolae. Prosternum flat, constricted between coxae, carinate laterally.

Mesothorax and Metathorax. Scutellum clothed with golden hairs, triangular, finely punctulate and sharp at apex. Elytron about two and four-tenths times as long as broad; striae regular, moderately impressed and punctulate; strial intervals finely punctulate. Mesosternum finely punctulate, tonguelike in basal area. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum finely punctulate, without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum reaching median sulcus. Metepisternum finely punctulate, without foveolae and transverse, fusiform curved and striate file; metepisternal sulcus forming slightly obtuse angle, with transverse axis curved and reaching lateral margin of metepisternum. Middle and hind legs with femur finely punctulate without foveolae; surface of hind coxa with scattered foveolae almost in contact with cluster of punctures near trochanteral insertion; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, two-thirds as long as basitarsus; mesal calcarium two-thirds as long as lateral calcarium.

Abdomen. Sterna finely punctulate; pygidium with terminal margin rounded, surface finely punctulate, without foveolae.

Size. Length (pronotum-elytra) 3.2-4.3 mm. Width 1.8-2.6 mm. Maximum thoracic depth 1.8-2.1 mm.

Genitalia (figures 11, 12). Median lobe constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and concave at base; armature of internal sac usually with two basal, irregular, very small sclerites; two median, elongate sclerites with lateral surfaces dentate; median wishbone-shaped sclerite; two apical, small spine-shaped sclerites (figure 11). Lateral lobes cleft to about one-fourth their length (figure 12).

Female

None available.

Host Plants

Old Record: *Barcena guanajuatensis* Dugès: Dugès 1880:37; Sharp 1885:502; Zacher 1952:477; Udayagiri and Wadhi 1989:19.

New Record: *Colubrina triflora* Brongn.: Mexico. Jalisco: Estación de Biología Chamela, III-04-1985, T.H. Atkinson collector.

Distribution

Old Record: Mexico (Dugès 1880).

Discussion

A. barcenae is placed in the Marmoratus group. It is closely related to *A. pictus* and *A. marmoratus* but it is much more closely related to *A. pictus* because both have a pair of very elongate serrate blades in the internal sac. Other sclerites in the genitalia also separate them. The pattern of external pubescence and the sclerites in the internal sac are very similar, the frontal carina is absent, the last six antennal segments are black, and foveolae are absent on the proepisternum, metasternum, metepisternum, and hind femur.

Amblycerus biolleyi (Pic)

Spermophagus biolleyi Pic 1954a:12 (Type: Costa Rica; Muséum National d'Histoire Naturelle, Paris).
Amblycerus biolleyi: Janzen 1977:418; Janzen 1978:184; Janzen 1980:946; Maes and Kingsolver 1991:30.

Male

Integument Color. Body dark red; elytron with basal irregular maculation encompassing area from stria two to mesal margin, extending to about one-fourth length of elytron, maculation near mesal, basal pronotal spot; hind femur with longitudinal maculation on lateral face; eyes shiny black.

Vestiture. Elytra and pronotum with brown and whitish hairs in finely mottled pattern; scutellum clothed with whitish hairs; metepisternum clothed with whitish hairs and subquadrate spot of brown hairs; metacoxa covered with brown and whitish hairs in mottled pattern; each abdominal segment with spot of dense white hairs on lateral margins. Pygidium with oval, dark spot, surrounded by whitish hairs.

Head. Subtriangular with small punctures; frons smooth without median linear carina. Eye ovoid, cleft to two-tenths its length by ocular sinus. First segment of antenna one and eight-tenths times as long as 2nd; 3rd segment one and two-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Frontoclypeal suture indistinct or absent. Clypeus and labrum covered with fine punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex and carinate at its basal margin. Dorsal surface of pronotum finely punctulate, without foveolae; cervical sulcus indistinct, with two cervical setae. Prosternum flat and constricted between coxae; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, densely setose, two times as long as wide, weakly tridentate at apex. Elytron two and one-half times as long as broad; striae regular, well impressed and weakly punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum densely punctulate, without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without transverse, fusiform, curved, striate file; metepisternal sulcus forming obtuse angle, with transverse axis straight and reaching lateral margin of metepisternum. Middle and hind legs with femur densely punctulate, without foveolae; surface of hind coxa densely punctulate, finely foveolate, and setose in lateral three-fourths and along posterior border, remaining one-fourth polished and punctulate, except for large cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium straight, one-half as long as basitarsus; mesal calcarium three-fourths as long as lateral calcarium.

Abdomen. Sterna finely punctulate, without foveolae; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, without foveolae.

Size. Length (pronotum-elytra) 1.6-2.1 mm. Width 1.1-1.6 mm. Maximum thoracic depth 1.0-1.1 mm.

Genitalia (figures 13, 14). Median lobe with slightly sinuate lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve slightly narrow and concave at base, arcuate in lateral view; armature of internal sac with one basal, subquadrate sclerite with two arms; median wishbone-shaped sclerite flanked by two large spiny sclerites, median area lined with spicules; apical area with two large sclerites (figure 13). Lateral lobes cleft to one-tenth their length (figure 14).

Female

None available.

Host Plants

Old Record: *Cordia alliodora* (Ruiz and Pavan): Janzen 1977:418, 1978:184, 1980:946.

New Record: None

Distribution

Old Record: Costa Rica: (Janzen 1977, 1978, 1980).

New Records: Colombia, Mexico.

Discussion

Because of its morphological similarities to *A. scutellaris,* we placed *A. biolleyi* in the Scutellaris group. They are easily separated by differences in the sclerites in the male genitalia (figures 13, 66). In addition to *A. biolleyi, A. scutellaris* and *A. atkinsoni* have been reported to feed in seeds of *Cordia alliodora.*

Amblycerus cerdanicola Kingsolver

Amblycerus cerdanicola Kingsolver 1970b:483 (Holotype: Puerto Rico. Lake Cartagena, 3 mi E Bokeuron, 20 mi S Mayaguez; USNMNH); Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:8.

Male

Integument Color. Dark red or reddish brown; frons, middle legs, and antennae occasionally yellowish; eyes piceous or silvery.

Vestiture. Body covered with white hairs; scattered patches of golden hairs on pronotum and elytron; pygidium with central spot of black hairs, lateral margins with white hairs.

Head. Elongated, covered with fine punctures; frons without median linear carina. Eye ovoid, cleft to three-tenths its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two times as long as 2nd; 3rd segment subequal to 2nd; remaining segments slightly longer than 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with punctures. Labrum with row of punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate with fine foveolae scattered on lateral areas; lateral carina faint and short; cervical sulcus absent but cervical setae present. Prosternum flat, constricted between coxae, finely punctulate; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum elongate, finely punctulate, densely setose with whitish hairs, tridentate at apex. Elytron about two and eight-tenths times as long as broad; striae regular, moderately impressed, weakly punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae scattered over surface; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum not reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae and without transverse, fusiform curved and striate file; metepisternal sulcus forming obtuse angle, with transverse axis curved and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without scattered foveolae; surface of hind coxa finely punctulate, densely setose with very faint foveolae on lateral three-fourths and along posterior border, remaining one-fourth polished, impunctate but with cluster of punctures near trochanteral insertion, foveolae and cluster of punctures contiguous or nearly so; metafemur without angulate tooth on ventral margin; lateral tibial calcarium almost straight, one-half as long as basitarsus; mesal calcarium two-thirds as long as lateral calcarium.

Abdomen. Sterna and pygidium finely punctulate, without foveolae; pygidium with terminal margin rounded.

Size. Length (pronotum-elytra) 2.8-3.0 mm. Width 1.5-1.8 mm. Maximum thoracic depth 1.2-1.5 mm.

Genitalia (figures 15, 16). Median lobe almost straight on lateral margins; ventral valve acuminate at apex; dorsal valve narrower and concave at base; armature of internal sac with a triangular, basal sclerite curved apically, explanate at base; median wishbone-shaped sclerite flanked by two serrate blades, and two small, apical sclerites with irregular shape (figure 15). Lateral lobes cleft to about fifteen-hundredths their length (figure 16).

Female

Similar to male.

Size. Length (pronotum-elytra) 2.4-3.5 mm. Width 1.4-2.0 mm. Maximum thoracic depth 1.2-1.7 mm.

Host Plants

Old Record: None.

New Record: *Cordia alliodora* (Ruiz and Pavan): ***Costa Rica.*** Heredia Prov., La Selva Exp. Sta., III-IV-1972, D. Sliwa collector.

Distribution

Old Record: Puerto Rico (Kingsolver 1970b:483).

New Records: Costa Rica, Mexico.

Discussion

A. cerdanicola initially was recorded only from Puerto Rico but has a wider distribution.

Amblycerus championi (Pic)

Spermophagus championi Pic 1913:60 (Type: Panama; Muséum National d'Histoire Naturelle, Paris).
Amblycerus championi: Blackwelder 1946:762; Janzen 1975a:1672; Janzen 1976:182; Janzen 1977:418; Janzen 1978:185; Janzen 1980:947; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:8.
Spermophagus irroratus Sharp 1885:502 (Type: Guatemala, Tocoy; The Natural History Museum, London); Johnson and Kingsolver 1981:410, *nec* Olivier 1795:21.
Amblycerus irroratus: Blackwelder 1946:762.

Male

Integument Color. Body dark reddish to black; sometimes body black and abdomen reddish; antenna with first 4-5 segments yellowish, rest of segments darker or black; eyes shiny black or brownish.

Vestiture. Body covered with small patches of whitish and black hairs forming mottled pattern; scutellum clothed with whitish hairs.

Head. Elongated, finely punctulate; frons without median linear carina, sometimes with short impunctate median line. Eye reniform, cleft to one-third its length by ocular sinus. First segment of antenna one and eight-tenths times as long as 2nd; 3rd segment subequal to 2nd; remaining segments more or less with proportions of 2nd; antenna scarcely reaching anterior margin of hind coxa. Clypeus covered with punctures. Labrum with row of hairs on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; pronotum with prominent lateral carina bifurcate apically one-half of its length; cervical sulcus indistinct, with two cervical setae. Dorsal surface of pronotum punctulate with foveolae concentrated only on lateral margins. Prosternum flat, constricted between coxae, and slightly curved apically; proepisternum finely punctate, without foveolae.

Mesothorax and Metathorax. Scutellum subquadrate; finely punctulate. Elytron about two and three-tenths times as long as broad; striae regular, well impressed, with punctures; strial intervals finely punctured. Mesosternum finely punctate with mesal sulcus for reception of prosternal process. Mes- episternum and mesepimeron finely punctate, without foveolae. Metasternum punctate, covered with foveolae; median sulcus of metasternum four-tenths as long as metasternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin, at level of trochanteral insertion. Metepisternum punctulate, with fine foveolae; metepisternal sulcus not very prominent, forming obtuse angle, with transverse axis straight and reaching lateral margin of metepisternum. Middle and hind leg with femur punctulate, without foveolae; surface of hind coxa densely punctulate, finely foveolate, and setose with cluster of punctures near trochanteral insertion, foveolae and cluster of punctures contiguous; ventral face of metafemur with pair of longitudinal row of small spines; lateral tibial calcarium curved, one-half as long as basitarsus; mesal calcarium three-fourths as long as lateral calcarium.

Abdomen. Sterna finely punctulate; 1st to 4th sterna with short line of foveolae laterally; pygidium with fine punctures, foveolate, with terminal margin rounded.

Size. Length (pronotum-elytra) 3.3-3.5 mm. Width 2.4-2.7 mm. Maximum thoracic depth 1.7-1.8 mm.

Genitalia (figures 17, 18). Median lobe slightly constricted on lateral margins and slightly wider on basal portion; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower, concave at base, and slightly arcuate in lateral view; armature of internal sac with basal, elliptic sclerite with deep, narrow emargination on basal edge; medial sclerite wishbone-shaped, flanked by two large sclerites (figure 17). Lateral lobes cleft to fifteen-hundredths their length (figure 18).

Female

Similar to male.

Size. Length (pronotum-elytra) 3.5-3.6 mm. Width 2.4-2.5 mm. Maximum thoracic depth 1.8 mm.

Host Plants

Old Records: *Cordia dentata* Poir.: Janzen 1975a:172, 1976:182. *C. panamensis* Riley: Janzen 1975a:172, 1976:182, 1977:418, 1980:947. *Pennisetum* spp.: Zacher 1952:470; Udayagiri and Wadhi 1989:23.

New Record: *Cordia toqueve* Sieber: ***Costa Rica.*** 5 mi N Bagaces Guanacaste Prov., IX-03-71, Janzen (#177).

Distribution

Old Records: Guatemala, Panama (Johnson and Kingsolver 1981).

New Records: Costa Rica, Mexico.

Discussion

A. championi has a very characteristic pattern of pubescence and integument coloration. The internal sac has a distinctive basal elliptic sclerite with an emargination on its basal edge (figure 17). *A. championi,* together with *A. teutoniensis* and *A. evangelinae,* form the Championi group. The host record of *Pennisetum* in the grass family is almost certainly incorrect but, nevertheless, it most certainly should be verified.

Amblycerus chiapas Romero, Johnson, and Kingsolver, new species

Male

Integument Color. Uniformly dark to almost black; sometimes reddish; eyes shiny black.

Vestiture. Body covered with mixed whitish and brownish hairs; pronotum with four small spots of yellowish hairs in transverse line and two more spots of sometimes indistinct yellowish hairs; elytron with four longitudinal dashed lines of alternate yellowish and brownish hairs, dashes can vary in size. Scutellum clothed densely with yellowish hairs. First sternum with spot of yellowish hairs; pygidium with irregular spots of dark and yellowish hairs.

Head. Elongated, covered with fine punctures; frons with weak median linear carina, sometimes with impunctate median line. Eye ovoid, cleft to two-tenths its length by ocular sinus. First segment of antenna two times as long as 2nd; 3rd segment subequal to 2nd; remaining segments slightly longer than 2nd; antenna reaching midline of hind coxa. Clypeus covered with deep punctures. Labrum with row of long hairs on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; pronotum with lateral carina reaching cervical sulcus; cervical sulcus prominent, with two cervical setae. Dorsal surface of pronotum punctulate with foveolae concentrated only on lateral areas. Prosternum flat, constricted between coxae; proepisternum finely punctate, without foveolae.

Mesothorax and Metathorax. Scutellum elongate, finely punctulate, triangular-shaped apically. Elytron about two and six-tenths times as long as broad; striae regular, well impressed, without punctures; strial intervals finely punctured. Mesosternum finely punctate with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum four-tenths as long as metasternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae; metepisternal sulcus forming obtuse angle, with transverse axis slightly curved and reaching lateral margin of metepisternum. Middle and hind leg with femur punctulate, without foveolae; surface of hind coxa densely punctulate, finely foveolate, and densely setose in lateral two-thirds and along posterior border, remaining one-third polished and impunctate, except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, one-half as long as basitarsus; mesal calcarium about eight-tenths as long as lateral calcarium.

Abdomen. Sterna finely punctulate; sternum five slightly emarginate at apex; pygidium with fine punctures, foveolate, terminal margin rounded.

Size. Length (pronotum-elytra) 3.4-3.8 mm. Width 2.1-2.2 mm. Maximum thoracic depth 1.9-2.0 mm.

Genitalia (figures 19, 20). Median lobe slightly constricted on lateral margins and wider on basal portion; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower, concave at base, and arcuate in lateral view; armature of internal sac with two irregular, basal sclerites; median boat-shaped sclerite with its dorsal face rugose, flanked by a pair of thin, fusiform sclerites; apical U-shaped sclerite, and two thin, subtriangular plaques; internal sac with central cluster of setae (figure 19). Lateral lobes cleft to two-tenths their length (figure 20).

Female

None available.

Host Plants

Unknown.

Type Series

Male holotype: ***Mexico.*** 5 mi SW El Bosque Chiapas, VII-04-69, Campbell and Bright collectors.

Paratypes: ***Mexico.*** Ver. Hwy. 180 5 mi N Tampico Alto, V-06-83, O'Brien and G.B. Marshall collectors: ***Panama.*** Canal Zone Fort Gulick Qts. 40, II-79, H.J. Harlan collector; Canal Zone 5 mi NW Gamboa, X-23-75.

Holotype deposited in CNC collection; paratypes deposited in USNMNH and COB collections.

Distribution

Mexico, Panama.

Discussion

This species has very typical vestiture and integument color. A medial boat-shaped sclerite with its dorsal face rugose is in the internal sac and is thus different from other species in *Amblycerus. A. chiapas,* together with *A. anosignatus* and *A. guerrerensis,* form the Anosignatus group. Host plants are unknown for the group.

Etymology

This species is so named because it is from the Mexican state of Chiapas. The specific epithet is a noun in apposition to *Amblycerus.*

Amblycerus cistelinus (Gyllenhal)

Spermophagus cistelinus Gyllenhal 1833:103 (Type: Cuba and Brazil; Naturhistoriska Riksmuseet, Sweden); Sharp 1885:501. Two specimens from Cuba bear "Typus" and "Paratypus" labels, but no specimen from Brazil is in the Riksmuseet Collection. The specimen with the "Typus" label is hereby designated lectotype.

Amblycerus cistelinus: Blackwelder 1946:762; Kingsolver 1970b:473-474; Johnson and Kingsolver 1971:148; Janzen 1975a:182; Janzen 1975b:1010; Janzen 1977:418; Janzen 1978:184; Janzen 1980:936,947; De Luca 1980:40; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:9; Kingsolver 1991:434; Ribeiro-Costa and Kingsolver 1992:187.

Spermophagus centralis Sharp 1885:500. (Type: British Honduras, Guatemala, and Panama; The Museum of Natural History, London; Lectotype designation: Ribeiro-Costa & Kingsolver 1992:187); Zacher 1952:468.

Amblycerus centralis: Blackwelder 1946:762; Kingsolver 1970b:483; Johnson and Kingsolver 1981:410; Kingsolver and Silva 1991:414.

Male

Integument Color. Red or dark red, with black spots and blotches scattered on elytron; lateral margins of pronotum darker red or black; eyes black or piceous.

Vestiture. Body covered with golden, brown, and white hairs, arranged in fine mottled pattern; pygidium with large, oval, central spot surrounded by white hairs.

Head. Elongated, with fine punctures; frons with prominent median linear carina extending from frontoclypeal suture to near vertex. Eye ovoid, cleft to two-tenths its length by ocular sinus. First segment of antenna three times as long as 2nd; 3rd segment one and seven-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with intermixed fine and small punctures. Labrum with few punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum finely punctulate with foveolae on lateral one-third of each side; lateral carina not reaching cervical sulcus; cervical sulcus fine, extending dorsad almost to midline, with three cervical setae. Prosternum flat, finely punctulate, constricted between coxae, and slightly curved apically; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum finely punctulate, slightly elongate, two times as long as wide, tridentate, covered with white hairs, set in slight depression between bases of elytra. Elytron two and six-tenths times as long as broad; striae regular, well impressed and punctulate; strial intervals finely punctured. Mesosternum tonguelike in basal area with sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate with few foveolae on mesal region; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, with very few foveolae scattered on surface, without transverse, fusiform curved and striate file; metepisternal sulcus forming right angle,

with transverse axis curved and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate without scattered foveolae; surface of hind coxa punctulate, densely setose and deeply foveolate on lateral two-thirds and along posterior border, remaining one-third polished, impunctate with cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium arcuate, two-thirds as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate with few scattered foveolae; pygidium with terminal margin rounded; surface finely punctulate, without foveolae.

Size. Length (pronotum-elytra) 4.1-7.2 mm. Width 2.4-4.1 mm. Maximum thoracic depth 1.9-3.1 mm.

Genitalia (figures 21, 22). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and concave at base; armature of internal sac with two elongate, flat, curved blades extending from base to medial portion of sac, sometimes blades with teeth of variable numbers; medially with two Y-shaped sclerites, and a large forked sclerite with basal margin serrate (figure 21). Lateral lobes cleft to one-third their length (figure 22).

Female

Similar to male.

Size. Length (pronotum-elytra) 5.3-7.2 mm. Width 3.2-4.0 mm. Maximum thoracic depth 2.5-3.0 mm.

Host Plants

Old Records: *Guazuma ulmifolia* Lam.: Kingsolver 1970b:473; Janzen 1975a:182, 1975b:1010, 1977:418, 1978:184, 1980:946; Udayagiri and Wadhi 1989:9. *Apeiba tibourbou* Aubl.: Zacher 1952:477; Udayagiri and Wadhi 1989:20.

New Records: *Guazuma ulmifolia* Lam.: ***Costa Rica.*** Guanacaste: Finca La Pacifica Cañas, I-12-1971 (#489 Janzen); La Pacifica, Cañas, V-22-26-1984, Riley, Rider, and LeDou collectors; Santa Rosa N. Park, III-15-1972. ***Cuba.*** Cayamas, C. Schwarz collector. ***Guatemala.*** El Progreso: 21 km W Sanarate, III-15-1980 (CDJ #1955-80). Zacapa, 40 km ENE Rio Hondo, III-13-1980 (CDJ #1876-80). ***Honduras.*** Comayagua: 2,200 ft, 12 mi S Comayagua, III-18-1979 (CDJ #894-79); 7 km SW Comayagua, III-23-1980 (CDJ #2087-80). ***Mexico.*** Campeche: 16 km N Champoton, III-03-1980 (CDJ #1651-80); 27 km N Francisco Escarcega, III-03-1980 (CDJ #1635-80). Chiapas: 1.5 km W Ocosingo, IX-30-1986, R. Turnbow collector; 4 km E Ciudad Cuauhtemoc, III-31-1979 (CDJ #1037-79); ca. 100 ft, 5 mi SE Pijijiapan, III-12-1979 (CDJ #773-79). Jalisco: Chamela, IV-10-1981, A. Pescador collector. Morelos: ca. 4,100 ft, 10 mi E Cuernavaca, IV-04-1979 (CDJ #1118-79). Oaxaca: ca. 700 ft, 12 mi W Tehuantepec, IV-02-1979 (CDJ #1088-79). Quintana Roo: 4 km N Tulum, III-09-1980 (CDJ #1800-80). San Luis Potosi: 69.5 km N Tamazunchale, VI-5-1987, R. Turnbow collector. Veracruz: 27 km ESE Cordoba, II-28-1980 (CDJ #1506-80); 4 km NE Catemaco, Lago Catemaco, III-01-1980 (CDJ #1578-80); Palma Sola, VII-1972, Halffter and Royers collectors; Santa Ana, 25-1979, R. Turnbow collector. Yucatan:

19 km N Valladolid, III-07-1980 (CDJ #1711-80); 3 km N Tizimin, III-07-1980 (CDJ #1724-80); 83 km W Valladolid, III-10-1980 (CDJ #1837-80). ***Panama.*** C.Z. 1 km N Paraiso, III-24-1979 (CDJ #981-79); Gamboa, III-27-1980 (CDJ #2162-80). Cocle: 10 km SE Penonome, III-29-1980 (CDJ #2201-80); 25 km SW La Chorrera, III-21-1979 (CDJ # 897-79); 35 km NE Santiago, III-21-1979, (CDJ #919-79); 6 km NE Chepo, IV-02-1980 (CDJ #2268-80); Canita, VI-03-80 (CDJ #2305-80). ***Venezuela.*** IV-20-1933.

Distribution

Old Records: Brazil, Costa Rica, Cuba, Mexico, Panama, and Venezuela (Kingsolver 1970b; Johnson and Kingsolver 1981).

New Records: Guatemala, Honduras.

Discussion

A. cistelinus is related to *A. guazumicola.* Their similarities are principally in vestiture and hosts, but the armature of the genitalia is distinctive and easy to recognize. *A. cistelinus* is also closely related to *A. sosia* Ribeiro-Costa and Kingsolver (1993) and *A. whiteheadi* Kingsolver (1991). Due to similarities between *A. sosia* and *A. whiteheadi,* we hypothesize that *A. cistelinus,* with a distribution from Mexico to South America, could be the ancestor of both. Vestiture in the three species is similar, but sclerites in the internal sac show similarities and differences.

The host record of *Apeiba tibourbou* Aubl. reported for this species is almost certainly incorrect. Kingsolver (1991) fashions a convincing argument that *A. cistelinus* has been confused with the closely related species *A. whiteheadi* Kingsolver, which actually feeds in the seeds of *Apeiba membranacea* Spruce ex Bentham, the valid name of the host. Another synonym is *Apeiba aspera* Aubl.

Amblycerus cuernavacensis Romero, Johnson, and Kingsolver, new species

Male

Integument Color. Uniformly dark red; eyes black.

Vestiture. Body covered with golden hairs; pronotum with five faint longitudinal stripes of dense golden hairs; elytron with some long faint stripes of dense golden hairs; pygidium with median longitudinal stripe.

Head. Subtriangular, densely punctulate with intermixed large and small punctures; frons without median linear carina. Eye ovoid, cleft from two-tenths to one-fourth its length by ocular sinus. First segment of antenna two and one-third times as long as 2nd; 3rd segment one and seven-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with fine punctures, some punctures larger and deeper. Labrum with row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum finely punctulate and totally covered with deep foveolae; pronotum with lateral carina reaching cervical sulcus; cervical sulcus extending dorsad almost to midline, with three cervical setae. Prosternum flat, punctulate, constricted between coxae, carinate laterally, curved apically and hairy; proepisternum finely punctulate with deep foveolae on surface.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, weakly bisulcate and bidentate at apex. Elytron two and three-tenths times as long as broad; striae regular, moderately impressed and punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae on mesal region. Median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, with foveolae, without transverse, fusiform, curved and striate file; metepisternal sulcus forming slightly obtuse angle, with transverse axis straight and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, deeply foveolate, and setose in lateral two-thirds and along posterior border, remaining one-third polished and impunctate, except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium straight, three-fourths as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate, with few scattered foveolae; 5th sternum slightly emarginate at apex; pygidium with terminal margin slightly truncate, surface finely punctulate, with deep foveolae.

Size. Length (pronotum-elytra) 3.7 mm. Width 2.5 mm. Maximum thoracic depth 1.9 mm.

Genitalia (figures 23, 24). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and concave at base; armature of internal sac with two basal, elliptic plates with one-half of its surface scaly; two medial, short, subelliptic, and concave sclerites with ventral margins serrate, and central U-shaped sclerite; internal sac with anterior portion lined with spinules (figure 23). Lateral lobes cleft to about two-tenths their length (figure 24).

Female

None available.

Host Plants

Unknown.

Type Series

Male holotype: ***Mexico.*** Morelos: 4.4 mi. E Cuernavaca, VI-27-29- 1976, Peigler, Gruetzmacher, Murray, and Schaffner collectors.

Holotype deposited in USNMNH.

Distribution

Mexico.

Discussion

Unfortunately only one specimen of this species was available for study. The characters of the genitalia are distinctive, especially a pair of basal, elliptic plates with half of its surface scaly in the internal sac (figure 23). *A. cuernavacensis* is closely related to *A. vitis* and *A. spondiae,* and together they constitute the Spondiae group.

Etymology

This species is so named because it was collected in Cuernavaca, Morelos, Mexico.

Amblycerus epsilon Kingsolver

Amblycerus epsilon Kingsolver 1980:232 (Holotype: Costa Rica. Finca La Pacifica, Guanacaste Prov.; USNMNH); Janzen 1980:947; Johnson and Kingsolver 1981:210; Johnson 1983b:34; Johnson 1983c:28; Johnson 1983d:32; Udayagiri and Wadhi 1989:9.

Male

Integument Color. Body dark red.

Vestiture. Body covered with yellowish hairs; pronotum with five faint dorsal stripes of dense hairs; elytron with four faint longitudinal stripes of dense hairs; each abdominal sclerite with one lateral spot of dense hairs; pygidium with narrow median stripe; pronotum, elytron, metasternum, metepisternum, hind coxa, femur, abdomen, and pygidium with foveolae that can be seen as minute bare spots, this feature more pronounced in some specimens than others; eyes piceous.

Head. Elongated, densely punctulate; frons with weak median linear carina extending from frontoclypeal suture to near vertex. Eye ovoid, cleft to one-fourth its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two and one-half times as long as 2nd; 3rd segment one and one-fourth times as long as 2nd; 4th segment one and nine-tenths times as long as 2nd; remaining segments more or less with proportions as 4th; antenna reaching middle of hind coxa. Clypeus covered with punctures. Labrum without punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate with foveolae on lateral one-fourth; lateral carina of pronotum not reaching cervical sulcus; cervical sulcus fine, extending dorsad almost to midline, with three cervical setae. Prosternum constricted between coxae, carinate laterally, sulcate in mesal area; proepisternum finely punctulate without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, one and one-half times as long as wide, finely punctulate, with a small tooth at apex. Elytron two and six-tenths as long as broad; striae regular, moderately impressed and punctulate; strial intervals finely punctured. Mesosternum tonguelike in basal area, finely punctulate, without evident mesal sulcus. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum finely punctulate, sometimes with a few faint foveolae present, without transverse, fusiform, curved, and striate file; metepisternal sulcus forming slightly obtuse angle, with transverse axis straight or slightly curved and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, sometimes with some scattered foveolae; surface of hind coxa punctulate, densely setose, and finely foveolate on lateral three-fourths and along posterior border, remaining one-fourth polished and impunctate except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, one-half as long as basitarsus; mesal calcarium as long as lateral calcarium; 2nd segment of metatarsus with one small apical tooth.

Abdomen. Sterna finely punctulate with scattered foveolae; sometimes with few, long setae on mesal region of sterna; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded or slightly truncate; surface finely punctulate, with scattered foveolae.

Size. Length (pronotum-elytra) 4.3-6.9 mm. Width 2.5-3.9 mm. Maximum thoracic depth 1.9-2.9 mm.

Genitalia (figures 25, 26). Median lobe constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and concave at base; armature of internal sac with two basal, irregular masses of blunt sclerites; two basal, curved sclerites; large, median, subcylindrical sclerite; two apical, small, curved sclerites, and sometimes small spines lining part of internal sac (figure 25). Number and kind of sclerites in internal sac variable; the two anterior, curved sclerites may be present, reduced in size or absent; the large, central, subcylindrical sclerite may be reduced in size or absent. Specimens collected in Chamela, Jalisco, Mexico, have only irregular, anterior masses of blunt sclerites and basally, small, curved sclerites. Lateral lobes cleft to one-fourth their length (figure 26).

Female

Similar to male except 5th abdominal sternum truncate at apex.

Size. Length (pronotum-elytra) 5.2-7.1 mm. Width 2.9-4.2 mm. Maximum thoracic depth 2.2-2.7 mm.

Host Plants

Old Records: *Cassia emarginata* L.: Kingsolver 1980:233; Janzen 1980:947; Udayagiri and Wadhi 1989:9. *Prosopis juliflora* (Sw.) DC.: Kingsolver 1980:233; Udayagiri and Wadhi 1989:9.

New Records: *Cassia emarginata* L.: ***Mexico.*** Colima: 11 mi NE Armerias, III-07-1973 (CDJ #390-73). Oaxaca: 15 km SE Puerto Escondido, I-05-1980 (CDJ #1367-80); 24 km S Matias Romero, I-04-1979 (CDJ #547-79); 62 mi SE Oaxaca, XII-21-1978 (CDJ #293-78); 92 km SW Oaxaca, I-06-1979 (CDJ #583-79); 2 mi W Tehuantepec VII-02-1964, C.D. Johnson collector. Michoacan: 28 km N Playa Azul, XII-30-1979 (CDJ #1238-79). *C. hintoni* Sandwith: ***Mexico.*** Jalisco: 22 mi N Barra de Navidad, I-02-1973 (CDJ #28-73); 56 mi S Puerto Vallarta, III-09-1973 (CDJ #452-73). *Cassia oxyphylla* (Kunth): ***Mexico.*** Jalisco: Chamela, V-18-1982, R. Pescador collector. *Cassia reticulata* Willd. ***Costa Rica.*** Guanacaste: La Pacifica, Cañas, IV-14-16-1971 (DHJ #615); Playa Coco, III-14-1971 (DHJ #615). *Cassia atomaria* (L.): ***Guatemala.*** El Progreso: 4 km S El Progreso, III-15-1980 (CDJ #1945-80). Zacapa: 32 km SW Rio Hondo, III-15-1980 (CDJ #1943-80); 7 km W Rio Hondo, III-15-1980 (CDJ #1938-80). ***Mexico.*** Campeche: 16 km N Champoton, III-03-1980 (CDJ #1650-80). Yucatan: 2 km S Rio Lagartos, III-07-1980 (CDJ #1743-80); 2 km W Chemax, III-08-1980 (CDJ #1755-80); 7 km N Uxmal, III-04-1980 (CDJ #1685-80); 3 km N Tizimin, III-07-1980 (CDJ #1725-80); 19 km N Valladolid, III-07-1980 (CDJ #1701-80). Jalisco: Est. Biol. Chamela, IV-1980, R. Pescador collector. Quintana Roo: 41 km NW Felipe Carrillo Puerto, III-09-1980 (CDJ #1806-80). *Cassia mollissima glabrata*

(Bentham): ***Mexico.*** Oaxaca: 2 km W Puerto Escondido, I-03-1980 (CDJ #1315-80). *Cassia nutans* var. *nutans* (Bentham): ***Mexico.*** Guerrero: 55 mi NW Zihuatanejo, III-07-1979 (CDJ #660-79).

Distribution

Old Records: Costa Rica, Guatemala.

New Record: Mexico.

Discussion

This species is highly variable in the number and size of sclerites in the internal sac. There is little consistency between its hosts and the form of the genitalia. We therefore considered it to be only one, variable species. The exception may be specimens collected from Chamela, Jalisco, which have more or less similar types of genitalia and one host. However, the sample is small and its genitalia do not have enough differences to consider them a different species. Perhaps this variability may be explained by a process of early adaptive radiation of *A. epsilon* into seeds of *Cassia* from ancestors in other Leguminosae.

Amblycerus eustrophoides (Schaeffer)

Spermophagus eustrophoides Schaeffer 1904:228 (Lectotype: Florida, Lake Worth; USNMNH); Schaeffer 1907:293: Pic 1913:59; Leng 1920:306; Johnson 1968:1268.

Amblycerus eustrophoides: Johnson 1968:1268; Bottimer 1968:102,1038; Kingsolver 1970b:473-474; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:9; Kingsolver et al. 1993:122.

Male

Integument Color. Body uniformly red to dark red; frons and clypeus sometimes dark brown; eyes silvery or black.

Vestiture. Body covered with silvery gray hairs; each elytral foveola has one brown seta; pygidium with narrow median line of hairs.

Head. Elongated, densely punctulate; frons with median impunctate line extending from frontoclypeal suture to middle of frons. Eye ovoid, cleft to two-tenths its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna about two times as long as 2nd; 3rd segment one and eight-tenths times as long as 2nd; remaining segments more or less with proportions as 1st; antenna reaching medial area of hind coxa. Clypeus covered with punctures. Labrum with few punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate with deep foveolae scattered on surface; lateral carina extending to anterior corner but not reaching cervical sulcus; cervical sulcus extending to midline with three cervical setae. Prosternum flat, constricted between coxae, carinate laterally; proepisternum with foveolae on anterior one-half.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, one and one-half times as long as wide, lateral margins straight, strongly tridentate at apex. Elytron two and two-tenths times as long as broad; striae regular, weakly impressed and deeply punctulate; strial intervals finely punctured. Mesosternum tonguelike in basal area, finely punctulate, with a mesal sulcus for reception of posterior area of prosternum. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate with few foveolae on mesal region; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate with shallow to deep foveolae over surface; metepisternal sulcus forming right angle with transverse axis slightly curved and reaching lateral margin of metepisternum, longitudinal axis wider, fusiform and transversely striate to form a "file." Surface of hind coxa punctulate, densely setose, and foveolate on lateral two-thirds, remaining one-third polished, impunctate with a small cluster of punctures near trochanteral insertion; foveolae and cluster of punctures proximate; metafemur punctulate, without foveolae, with angulate tooth on ventral margin; lateral tibial calcarium slightly curved, one-half as long as basitarsus; mesal calcarium two-thirds as long as lateral calcarium.

Abdomen. Sterna finely punctulate with few foveolae on lateral surfaces; sterna with a few, long setae mesally; 5th abdominal sternum emarginate at apex; pygidium with terminal margin rounded or slightly truncate, surface finely punctulate, with scattered foveolae.

Size. Length (pronotum-elytra) 4.9-5.9 mm. Width 3.1-3.6 mm. Maximum thoracic depth 2.3-2.8 mm.

Genitalia (figures 27, 28). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrow and deeply concave at base; armature of internal sac with two basal, subtriangular sclerites with dorsal surfaces finely dentate; two median blades with one-half of dorsal surface dentate; median wishbone-shaped sclerite, and two irregular, apical, small sclerites; internal sac lined with many spinules (figure 27). Lateral lobes cleft to two-tenths their length (figure 28).

Female

Similar to male except 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 5.1-6.5 mm. Width 3.2-4.0 mm. Maximum thoracic depth 2.5-3.1 mm.

Host Plants

Old Record: *Drypetes laterifolia* (Sw.): Kingsolver 1970b:475; Udayagiri and Wadhi 1989:9.

New Record: None.

Distribution

Old Records: Cuba, Mexico, United States.

New Record: Costa Rica.

Discussion

Specimens of this species have some very interesting structures: the "file" on the metepisternum and the tooth on the hind femur. Kingsolver (1970b) and Kingsolver et al. (1993) give a general idea about the possible use of these structures. They state that the structure on the metepisternum may be a file and the tooth on the metafemur a scraper, resulting in a stridulatory organ. It will be necessary to study living insects to define the actual function of these structures. These structures are shared with *A. stridulator* and *A. pollens* (Sharp) (Kingsolver et al. 1993).

Amblycerus evangelinae Romero, Johnson, and Kingsolver, new species

Male

Integument Color. Dark red, except labrum, posterior part of clypeus, 1st to 5th and 11th antennal segments (sometimes 1st to 7th), tarsi of legs, posterior margin of elytron, posterior margin of pygidium, and calcaria yellowish; tips of femora, tibiae, trochanters, and posterior margin of metasternum may be yellowish; eyes reddish dark to black.

Vestiture. Body, except legs and head, covered with dark and white hairs; hairs forming small spots scattered over surface; pygidium with large dark spots, flanked with white hairs.

Head. Subtriangular, densely punctulate; frons without median linear carina. Eye reniform, cleft to three-tenths its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two times as long as 2nd; 3rd segment one and six-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching posterior margin of hind coxa. Clypeus covered with fine punctures. Labrum with few scattered punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate, without foveolae; lateral carina of pronotum not reaching cervical sulcus; cervical sulcus faint, extending dorsad almost to midline, with two cervical setae. Prosternum deeply constricted between coxae; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum elongate and finely punctulate, weakly tridentate at apex. Elytron about three times as long as broad; striae regular, well impressed and weakly punctulate; strial intervals finely punctured. Mesosternum finely punctulate, with carina on anterior margin; mesal area with weak sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate without foveolae. Metasternum punctulate without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae and without transverse, fusiform, curved, and striate file; metepisternal sulcus forming almost right angle, with transverse axis straight and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa punctulate, with deep foveolae, densely setose in lateral two-thirds and along posterior border, remaining one-third polished and impunctate except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures contiguous or nearly so; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly arcuate, one-third as long as basitarsus; mesal calcarium subequal to lateral calcarium.

Abdomen. Sterna finely punctulate, without foveolae; pygidium with apical margin rounded; surface finely punctulate, without foveolae.

Size. Length (pronotum-elytra) 2.3-2.5 mm. Width 1.3-1.4 mm. Maximum thoracic depth 1.4-1.5 mm.

Genitalia (figures 29, 30). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrow and concave at base; armature of internal sac with two basal ovoidal plates; two median, elongate sclerites with basal tips spine-shaped; median blade dentate on lateral margin; four clusters of small spines, two above ovoidal plates and two in medial area, lateral to spine-shaped sclerites (figure 29). Lateral lobes cleft to about fifteen-hundredths their length (figure 30).

Female

Similar to male.

Size. Length (pronotum-elytra) 2.3-2.9 mm. Width 1.4-1.9 mm. Maximum thoracic depth 1.4-1.6 mm.

Host Plants

Unknown.

Type Series

Male holotype, female allotype, and two paratypes: *Mexico.* Guerrero: El Pelillo Rd., 6 km W El Veintidos, IX-16-1989, R. Turnbow collector.

Other paratypes: *Mexico*. Chiapas: 21 mi N Arriaga, VII-5-78, C.D. Johnson collector. Oaxaca: 44 mi E Juchitan, VII-5-1972, Hevel collector; Tehuantepec, VI-29, Knab collector. Guerrero: Acapulco, VII-30, Knab collector. No state: Rosario Cupatlan, XII-6-1953, Salayer collector. ***Costa Rica.*** Heredia, VII-10-1975, NLH Krauss collector; 10 km N San Jose, VII-9-1972, Maldonado collector. ***Panama.*** Chir. Volcan (30 km NW), VII-23-1976, W.E. Clark collector.

Holotype and allotype deposited in the USNMNH. Paratypes deposited in the C. D. Johnson Collection, Northern Arizona University, the R. Turnbow Collection, and the J. Romero Collection.

Distribution

Mexico, Costa Rica, Panama.

Discussion

A. evangelinae has a very characteristic pattern of pubescence and color of the integument. The pronotum lacks foveolae, and the sclerites in the internal sac are distinctive, especially the pair of median, elongate sclerites with basal tip spine-shaped and the median blade dentate on the lateral margins.

This species is related to *A. teutoniensis* and *A. championi* because the major part of the integument is black and the pubescence forms a mottled pattern. These three species form the Championi group which apparently feed only in *Cordia* (Boraginaceae). It is, however, necessary to confirm the host plant for *A. evangelinae.*

Etymology

This species is named in honor of Evangelina Ramírez Llanos, wife of the first author.

Amblycerus guazumicola Kingsolver and Johnson

Amblycerus guazumicola Kingsolver and Johnson (in Johnson and Kingsolver 1971:145). (Holotype: Mexico. 4 mi NW Alamos, Sonora; USNMNH); Center and Johnson 1974:1097; Pfaffenberger 1979:238; Pfaffenberger 1985:2; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:10.
A. guazumae (sic): Janzen 1975b:1010.

Male

Integument Color. Red or dark red with black spots scattered on elytron; eyes shiny black.

Vestiture. Body covered with golden and white hairs arranged in fine mottled pattern, except for faint bands of golden hairs on elytron with indistinct rows of white hairs in strial punctures; head with four spots in a row, without pubescence on vertex; pygidium with a large, oval, central spot and two lateral, smaller spots of golden hairs surrounded by white hairs; in some specimens smaller spots may be indistinct.

Head. Elongated, densely punctulate; frons with prominent median linear carina extending from frontoclypeal suture to vertex. Eye ovoid, cleft to fifteen-hundredths its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two and three-tenths times as long as 2nd; 3rd segment two times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching middle of hind coxa. Clypeus covered with punctures. Labrum with row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate with foveolae on lateral areas leaving narrow midline without foveolae; lateral carina not reaching cervical sulcus; cervical sulcus fine, extending dorsad almost to midline, with five cervical setae. Prosternum flat, constricted between coxae, carinate laterally; proepisternum finely punctulate with foveolae on apical one-half.

Mesothorax and Metathorax. Scutellum elongate, finely punctulate, densely setose, two and one-half times as long as wide, strongly tridentate at apex. Elytron two and seven-tenths times as long as broad; striae regular, moderately impressed and deeply punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate with few deep foveolae on mesal region near median sulcus; median sulcus of metasternum one-half as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate with few fine foveolae over surface, without transverse, fusiform, curved, and striate file; metepisternal sulcus forming right angle, with transverse axis slightly curved apically and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate and setose in lateral two-thirds and along posterior border, mesal one-third polished and impunctate except for small cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium curved, two-thirds as long as basitarsus; mesal calcarium four-tenths as long as lateral calcarium.

Abdomen. Sterna finely punctulate, with scattered foveolae; sterna with a few, long setae mesally; 5th sternum emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, without foveolae.

Size. Length (pronotum-elytra) 5.8-7.5 mm. Width 3.0-3.9 mm. Maximum thoracic depth 2.4-3.0 mm.

Genitalia (figures 31, 32). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and strongly concave at base; armature of internal sac with bilobed, finely serrate, partially membranous basal bridge; median wishbone-shaped sclerite; two long, sinuate bladelike sclerites; apex with two lateral, elongate spines, and two small, irregular, serrate sclerites behind elongate spines (figure 31). Lateral lobes cleft to one-third their length (figure 32).

Female

Similar to male except antenna shorter, reaching anterior margin of hind coxa, and 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 5.4-8.5 mm. Width 3.0-4.7 mm. Maximum thoracic depth 2.3-3.6 mm.

Host Plants

Old Record: *Guazuma tomentosa* H.B.K.: Johnson and Kingsolver 1971:142; Center and Johnson 1974:1097; Janzen 1975b:1010 (as *Amblycerus guazumae*); Udayagiri and Wadhi 1989:10.

New Record: None.

Distribution

Mexico.

Discussion

A. guazumicola is placed in the Cistelinus group, together with *A. sosia* and *A. cistelinus*. In this group, *A. guazumicola* is much more closely related to *A. cistelinus* because of the similarity in the sclerites in the internal sac. They have the following differences: in the internal sac *A. guazumicola* differs from *A. cistelinus* in the bilobed, finely serrate, partially membranous basal bridge-shaped sclerite; two lateral, elongate spines; and two small, irregular, serrate sclerites behind the elongate spines; the wishbone-shaped sclerite is not serrate on its basal margin and the two long, sinuate bladelike sclerites are without teeth. *A. guazumicola* and *A. cistelinus* feed in the same species of plant (*Guazuma ulmifolia* is a synonym of *G. tomentosa*).

Amblycerus guerrerensis Romero, Johnson, and Kingsolver, new species

Male

Integument Color. Dark red; eyes shiny black with small silvery areas.

Vestiture. Head covered with mixed golden and white hairs; pronotum with two lateral, faint to distinct spots of orange hairs with some scattered small patches of whitish hairs; scutellum clothed with whitish hairs; elytron with longitudinal, faint stripes of orange hairs and some scattered small spots of whitish and black hairs; prosternum, mesosternum, metasternum, prolegs, and mesolegs with white hairs; metatibia with mixed whitish and dark hairs; mesepimeron, metepisternum, and metacoxa with yellowish and whitish hairs forming mottled pattern; abdomen mostly covered with whitish hairs and some scattered yellowish hairs, each sternum with dense spots of whitish hairs on lateral region; pygidium with four marginal spots of black hairs, two smaller, and one central spot of black hairs, remainder of pygidium with whitish, yellowish, and dark hairs.

Head. Subtriangular, densely punctulate; frons without median linear carina. Eye ovoid, cleft to one-fourth its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two and four-tenths times as long as 2nd; 3rd segment one and nine-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus densely covered with small and large punctures. Labrum with some scattered punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate with deep foveolae restricted to lateral areas; lateral carina reaching cervical sulcus, cervical sulcus prominent, extending dorsad almost to midline, with two cervical setae. Prosternum flat, constricted between coxae, carinate laterally, curved apically, and rounded at apex; proepisternum finely punctulate, with foveolae on apical one-half.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, densely setose, one and nine-tenths times as long as wide, bisulcate and tridentate at apex. Elytron two and four-tenths times as long as broad; striae regular, deeply impressed and moderately punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area, with a mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum finely punctulate, without foveolae and transverse, fusiform, curved and striate file; metepisternal sulcus forming right angle, with transverse axis curved and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate and setose in lateral one-half and along posterior border, remaining one-half polished and impunctate except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, three-fourths as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate with scattered foveolae; 5th sternum truncate at apex; pygidium with terminal margin rounded, surface finely punctulate with some fine foveolae.

Size. Length (pronotum-elytra) 4.4-5.1 mm. Width 2.8-3.2 mm. Maximum thoracic depth 2.1-2.6 mm.

Genitalia (figures 33, 34). Median lobe constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve slightly narrow and strongly concave at base; armature of internal sac with two basal, thin plates with small tubercles on anterior one-half; two small sclerites bearing two to four spines on each; median wishbone-shaped sclerite with dorsal margins serrate, and two apical, angular sclerites; internal sac with apical portion densely lined with spinules (figure 33). Lateral lobes cleft to two-tenths their length (figure 34).

Female

None available.

Host Plants

Unknown.

Type Series

Male holotype: ***Panama.*** Canal Zone: Barro Colo. Isl., XII-21-1963, L.J. Bottimer collector.

Paratype: ***Mexico.*** 21.2 km NW Ixtapa Guerrero, VII-22-1985, R. Turnbow collector; 22 km N Ocozocoautla Chiapas, VIII-2-1969, Bright and Campbell collectors.

Holotype deposited in USNMNH, one paratype deposited in CNC, and one paratype in TUR.

Distribution

Panama, Mexico.

Discussion

Characteristics that set *A. guerrerensis* apart are its pubescence pattern, the serrate dorsal margins of the median wishbone-shaped sclerite, and pair of small spinous sclerites in the internal sac.

This species is placed with *A. chiapas* and *A. anosignatus* in the Anosignatus group. Host plants are unknown for all species in this group.

Etymology

This species is named for the Mexican state of Guerrero.

Amblycerus hespenheidei Romero, Johnson, and Kingsolver, new species

Male

Integument Color. Body brownish, except the following yellowish: apical portion of last segment of antenna, the two mesal and one apical transverse elytral stripes, legs, the apical portion of last sternum; some specimens may have first 3 or 4 antennal segments yellowish.

Vestiture. Pronotum clothed with brownish-black hairs, contrasting with some small spots of whitish and yellowish hairs; elytron covered with dark brownish hairs with three bands of yellowish hairs, two mesally, one apically; elytron lined with fine whitish hairs to give fine mottled pattern. Apical portion of elytron with some small spots of grey hairs. Fifth sternum with two spots of dark brownish hairs. Pygidium with large spot of dark hairs and some scattered whitish hairs.

Head. Subtriangular, covered with fine punctures; frons without median linear carina. Eye ovoid, cleft to two-tenths its length by ocular sinus. First segment of antenna two times as long as 2nd; 3rd segment one and one-half times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Frontoclypeal suture well impressed; clypeus covered with scattered small and large punctures. Labrum without punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with median carina. Dorsal surface of pronotum punctulate with foveolae only on lateral margins; lateral carina faint and reaching cervical sulcus; cervical sulcus fine with one cervical seta. Prosternum flat, constricted between coxae, rounded apically; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, setose, one and eight-tenths times as long as wide, weakly tridentate at apex. Elytron two and one-half times as long as broad; striae regular, well impressed, weakly punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum densely punctulate, with fine foveolae scattered over surface; median sulcus of metasternum one-third as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate with fine foveolae, without transverse, fusiform, curved, striate file; metepisternal sulcus forming right angle with transverse axis straight and reaching lateral margin of metepisternum. Middle and hind legs with femur densely punctulate, without foveolae; surface of hind coxa densely punctulate, with some weak foveolae, and setose in lateral seven-tenths and along posterior border, mesal one-third polished and impunctate except for large cluster of punctures near trochanteral insertion, foveolae and cluster of punctures contiguous; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, seven-tenths as long as basitarsus; mesal calcarium two-thirds as long as lateral calcarium.

Abdomen. Sterna finely punctulate, without foveolae; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded; surface finely punctulate, without foveolae.

Size. Length (pronotum-elytra) 3.9 mm. Width 3.2 mm. Maximum thoracic depth 2.8 mm.

Genitalia (figure 35). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, slightly arcuate in lateral view; dorsal valve subcampanulate, concave at base; armature of internal sac with two basal spine-shaped sclerites; two median blades, serrate on lateral margins, and two fusiform sclerites. Internal sac lined basally with very small spines, median portion of internal sac clothed with fine spicules (figure 35).

Female

Similar to male.

Size. Length (pronotum-elytra) 3.6 mm. Width 2.9 mm. Maximum thoracic depth 2.3 mm.

Host Plants

Unknown.

Type Series

Male holotype and female allotype: ***Mexico.*** Veracruz, Est. de Los Tuxtlas, V-2-1991, H.A. Hespenheide collector.

Holotype deposited in USNMNH. Allotype deposited in the J. Romero Collection, Centro de Entomología y Acarología, Colegio de Postgraduados, Chapingo, Estado de México C.P. 56230, Mexico.

Distribution

Mexico.

Discussion

This species is placed in the Marmoratus group. It is considered a distinct species because of the characteristic pubescence and coloration of its integument and the spine-shaped sclerites in the internal sac of the male genitalia.

Etymology

The specific epithet *hespenheidei* is in honor of Henry Hespenheide, collector of the insects.

Amblycerus ireriae Romero, Johnson, and Kingsolver, new species

Male

Integument Color. Dark red, except strial intervals which are less dark; eyes silvery.

Vestiture. Body and legs covered with white and intermixed golden setae.

Head. Elongated with intermixed punctulations and punctures; frons with faint median linear carina or impunctate line extending from frontoclypeal suture to near vertex. Eye ovoid, cleft to one-fourth its length by ocular sinus. First segment of antenna two and six-tenths times as long as 2nd; 3rd segment two times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching middle of hind coxa. Clypeus and labrum covered with punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of prothorax punctulate with scattered foveolae; lateral carina not reaching cervical sulcus; cervical sulcus faint, extending dorsad almost to midline, with three cervical setae. Prosternum flat, constricted between coxae, carinate laterally; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, weakly compressed laterally, finely punctulate, one and six-tenths times as long as wide, weakly tridentate at apex. Elytron two and six-tenths times as long as broad; striae regular, moderately impressed and punctulate; strial intervals finely punctured. Mesosternum tonguelike in basal area, finely punctulate. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum densely punctulate with few fine foveolae on mesal region; median sulcus of metasternum one-fourth as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate with fine foveolae covering surface, without transverse, fusiform, curved, and striate file; metepisternal sulcus forming slightly obtuse angle with transverse axis straight and without reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, with some scattered foveolae; surface of hind coxa with scattered foveolae on lateral three-fourths, remaining one-fourth polished and impunctate with cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, two-thirds as long as basitarsus; mesal calcarium one-half as long as lateral calcarium; basitarsus with small tooth at apex.

Abdomen. Sterna finely punctulate with scattered foveolae; pygidium with terminal margin truncate; surface finely punctulate with scattered foveolae.

Size. Length (pronotum-elytra) 4.4 mm. Width 3.1 mm. Maximum thoracic depth 2.4 mm.

Genitalia (figures 36, 37). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve subcampanulate, concave at base; armature of internal sac with pear-shaped sclerite with basal end sharp; two subelliptical sclerites, slightly concave, and a cluster of small spines in mesal area (figure 36). Lateral lobes with straight sides, cleft to about two-tenths their length (figure 37).

Female

Similar to male except that terminal margin of pygidium slightly bilobed.

Size. Length (pronotum-elytra) 4.3-5.3 mm. Width 2.8-3.3 mm. Maximum thoracic depth 2.4-2.6 mm.

Host Plants

Unknown.

Type Series

Male holotype: ***United States.*** Texas: Pecos Co., July-August 1966, Light trap, C.W. Neeb collector.

Female allotype: ***United States.*** Texas: Val Verde Co., VI-28-40, D.J. and J.N. Knull, collectors.

Paratypes: ***United States.*** Texas: Jeff Davis Co., Davis Mts. St. Pk., VIII-18-1983, E.G. and M.A. Riley.

Holotype and allotype deposited in USNMNH. One paratype each deposited in the C.D. Johnson Collection, Northern Arizona University, the J. Romero Collection, and the E.G. Riley Collection, Texas A&M University.

Distribution

United States.

Discussion

A. ireriae is a very distinctive species, principally because of the reduced number of sclerites in the internal sac and because the lateral lobes have parallel margins. In the internal sac, the pear-shaped sclerite is unique. *A. ireriae* is closely related to *A. acapulcensis* and *A. robiniae,* and these three species form the Robiniae group.

Etymology

This species is named in honor of Laura Ireri Romero Ramírez, daughter of the first author.

Amblycerus mariae Romero, Johnson, and Kingsolver, new species

Male

Integument Color. Body red or dark red except clypeus and humeri which are darker or black and small dark spots may be present on elytron; some specimens may have darker areas on pronotum, metasternum, metepisternum, and metacoxa; eyes shiny black or silvery.

Vestiture. Body covered with white, yellowish, and dark hairs arranged in fine mottled pattern; in some specimens dark hairs may be absent or reduced to only very few spots. Scutellum clothed with dense white and yellowish hairs; pygidium with large central spot of brown hairs flanked with whitish hairs.

Head. Subtriangular, densely punctulate; frons without median linear carina. Eye ovoid, cleft to one-fourth its length by ocular sinus. First segment of antenna two and one-half times as long as 2nd; 3rd segment one and six-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching middle of hind coxa. Clypeus covered with punctures. Labrum with row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; lateral carina reaching anterior portion of pronotum. Dorsal surface of pronotum finely punctulate, foveolate principally on basal corners; cervical sulcus absent, without cervical setae. Prosternum flat, constricted between coxae, rounded apically; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, densely setose, two times as long as wide, weakly tridentate at apex. Elytron two and six-tenths times as long as broad; striae regular, well impressed, weakly punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area, with a mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate without foveolae. Metasternum punctulate without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae and without transverse, fusiform, curved and striate file; metepisternal sulcus forming slightly obtuse angle, with transverse axis straight and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, foveolate, and setose in lateral two-thirds and along posterior border, mesal one-third polished and impunctate except for cluster of punctures near trochanteral insertion; foveolae and cluster of punctures contiguous or nearly so; metafemur without angulate tooth on ventral margin; lateral tibial calcarium straight, one-half as long as basitarsus; mesal calcarium two-thirds as long as lateral calcarium.

Abdomen. Sterna finely punctulate, without foveolae; 5th sternum emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, without foveolae.

Size. Length (pronotum-elytra) 3.5-4.6 mm. Width 2.1-2.5 mm. Maximum thoracic depth 1.8-2.1 mm.

Genitalia (figures 38, 39). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex; dorsal valve narrower and strongly concave at base; armature of internal sac with two basal, ovoid sclerites, two J-shaped sclerites flanked by two blades, and apical U-shaped sclerite; internal sac with two clusters of small setae, one mesal and one basal (figure 38). Lateral lobes cleft to two-tenths their length (figure 39).

Female

Similar to male except 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 3.7-4.2 mm. Width 2.2-2.6 mm. Maximum thoracic depth 1.8-2.1 mm.

Host Plants

Cordia alba Roem. and Schult.: ***Nicaragua.*** Los Altos de Masayamas, VI-25-1963, L.J. Bottimer collector.

Distribution

Costa Rica, Honduras, Mexico, Nicaragua, Panama, Tobago, Venezuela.

Type Series

Male holotype: ***Venezuela.*** Carabobo: Puerto Cabello, XI-1960, Dr. S. Frey collector, Museum Frey Tutzing.

Female allotype: ***El Salvador.*** SC Porrillo, June 5 1958, L.J. Bottimer collector, Depto. de San Vicente, L.J. Bottimer Collection No. 102a.

Paratypes: ***El Salvador.*** La Toma, 11 June 1958, L.J. Bottimer collector, L.J. Bottimer Collection No. 102g. ***Costa Rica.*** Guanacaste Prov.: Hacienda La Purisima, VI-9-1973, Ginter Ekis collector; La Pacifica 4 km NW Cañas, VI-5-1979, J.M. and B.A. Campbell collectors; 3 mi N Cañas, 90 m, La Pacifica, VII-9-11-1987, H. Howden collector. ***Honduras.*** 12 km W Olanchito, I-1949, E.C. Becker collector; Coyoles, VIII-5-1977, G.V. Manley collector. ***Mexico.*** XI-18-1945; 22 km N Ocozocoautla Chis., VII-2-1969, Bright and Campbell collectors; 19 mi S Matias Romero Oax., VI-24-25-1969, Bright and Campbell collectors. ***Nicaragua.*** Los Altos de Masayamas, VI-25-1963, L.J. Bottimer collector; 16 mi S Esteli, VII-24-1965, A.G. Raske collector. ***Tobago.*** Charlottesville, April, R.F. Darsie collector; Lt., VII-13-1915, J. Maldonado C. collector. ***Venezuela.*** Tocayo, VI-30-1964, J. Maldonado C. collector; Rio Claro, VI-30-1964,
J. Maldonado C. collector.

Holotype and some paratypes deposited in the USNMNH. Allotype and some paratypes deposited in the CNC. One paratype each deposited in the C. D. Johnson Collection, Northern Arizona University, and the J. Romero Collection.

Discussion

A. mariae has a characteristic pattern of pubescence, and some sclerites in the internal sac are unique; for example, the pair of basal, ovoid sclerites and the pair of J-shaped sclerites. This species is placed in the Scutellaris group because of the presence of foveolae only on the lateral margins of the pronotum; the absence of foveolae on the metasternum, the metepisternum, and hind femur; the lateral tibial calcarium being straight; the absence of a frontal carina; and the pygidium with an oval, central spot. Species in the Scutellaris group feed on the Boraginaceae.

Etymology

The specific epithet *mariae* is in honor of Maria Romero Ramírez, daughter of the first author.

Amblycerus marmoratus (Sharp)

Spermophagus marmoratus Sharp 1885:501 (Type: Mexico; Panama: Volcan de Chiriqui, Bugaba; The Museum of Natural History, London).
Amblycerus marmoratus: Blackwelder 1946:762; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:11.

Male

Integument Color. Body yellowish except head, antennae, scutellum, prosternum, procoxa, mesosternum, mesal region of metasternum, anterior part of metepisternum, metacoxa, basal one-half of metafemur, and first 3 abdominal sterna black or dark brown; elytron with large black spot; in some specimens 1st segment of antenna, metepisternum, hind trochanter, and 1st abdominal sternum yellowish; eyes shiny black with some small areas
brownish.

Vestiture. Body covered with whitish hairs, but on pronotum, elytron, hind leg, and abdomen black hairs forming spots of variable size; pygidium with large, oval, central spot clothed with dark brown hairs and flanked with white hairs and two lateral, smaller spots of black hairs.

Head. Elongated and densely punctulate; frons usually smooth, sometimes with small impunctate line, without median, linear carina. Eye ovoid, cleft to one-fourth its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna one and nine-tenths times as long as 2nd; 3rd segment one and three-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with fine punctures. Labrum with row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate, with fine foveolae on lateral areas; lateral carina not reaching cervical sulcus; cervical sulcus fine with three cervical setae. Prosternum flat, finely punctulate, constricted between coxae, carinate laterally; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, constricted on lateral margins, finely punctulate, densely setose, one and six-tenths times as long as wide, strongly tridentate at apex. Elytron two and one-half times as long as broad; striae regular, poorly impressed principally on humeral areas which are punctate; strial intervals finely punctulate. Mesosternum finely punctulate, tonguelike in basal area, with a mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum finely punctulate, without foveolae; median sulcus of metasternum usually one-half as long as sternum, absent in some specimens; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae and without transverse, fusiform, curved, and striate file; metepisternal sulcus forming acute angle with transverse axis slightly curved without reaching lateral margin of metepisternum. Middle and hind legs with femur finely punctulate, without foveolae; surface of hind coxa densely punctulate, with few fine foveolae, and setose in lateral two-thirds and

along posterior border, mesal one-third polished and impunctate except for small cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium curved, one-half as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate with very few scattered foveolae; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, without foveolae.

Size. Length (pronotum-elytra) 4.5-5.4 mm. Width 3.0-3.5 mm. Maximum thoracic depth 2.1-2.5 mm.

Genitalia (figures 40, 41). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and strongly concave at base, slightly arcuate in lateral view; armature of internal sac with two basal, linear sclerites, each with small protuberance on mesal, dorsal region, visible only in lateral view; median elliptic plate with its dorsal surface sculptured with fine scales; median wishbone-shaped sclerite; two blades finely serrate on one of its margins; two medial, elongate sclerites slightly concave at base, and apical C-shaped sclerite, over ejaculatory duct, with its internal margin finely denticulate; internal sac lined mesally with fine spinules, basal portion with a cluster of small setae (figure 40). Lateral lobes cleft to two-tenths their length, with a pair of minute pads covered with fine pubescence between them (figure 41).

Female

Similar to male except 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 5.0-5.9 mm. Width 3.2-3.7 mm. Maximum thoracic depth 2.6-2.7 mm.

Host Plants

Unknown.

Distribution

Old Records: Mexico, Panama (Johnson and Kingsolver 1981).

New Record: Costa Rica.

Discussion

A. marmoratus shares the following features with *A. barcenae* and *A. pictus:* a strongly mottled pattern of pubescence; at least six of the antennal segments black; absence of foveolae on the proepisternum, metasternum, metepisternum, and hind femur; and absence of a frontal carina. Details of the male genitalia will easily separate them. These three species and *A. hespenheidei* form the Marmoratus group.

Amblycerus multiflocculus Kingsolver

Amblycerus multiflocculus Kingsolver 1980:235 (Holotype: Costa Rica. Santa Rosa N. P. Guanacaste Prov.; USNMNH); Janzen 1980:947; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:12.

Male

Integument Color. Body dark red, eyes black.

Vestiture. Pronotum with whitish hairs, very faint patches of golden hairs, four small mesal spots of dense whitish hairs in line, two whitish spots laterally; elytron with mixed gray and golden hairs, elytron with five stripes composed of many spots of dense whitish hairs, 5th very vague, short, and located almost on lateral margin; pygidium clothed with whitish hairs, sometimes with faint median line of dense whitish hairs; venter covered with golden hairs, each abdominal sternum with dense lateral spot of whitish hairs; 4th and 5th sternum with some scattered black hairs.

Head. Elongated and densely punctulate; frons with faint median linear carina extending from frontoclypeal suture to near vertex. Eye ovoid, cleft to one-fourth its length by ocular sinus. First segment of antenna two times as long as 2nd; 3rd segment one and one-half times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with small and large punctures; labrum polished except for row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; lateral carina faint, reaching cervical sulcus. Dorsal surface of pronotum finely punctulate with deep foveolae scattered over surface except in longitudinal midline; cervical sulcus fine, extending dorsad almost to midline, with two cervical setae. Prosternum flat, constricted between coxae, carinate laterally, and slightly curved apically; proepisternum finely punctulate, with fine foveolae on apical one-half.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, two times as long as wide, moderately setose, tridentate, bisulcate at apex. Elytron two and four-tenths times as long as broad; striae regular, deeply impressed and punctulate; strial intervals finely punctured. Mesosternum tonguelike in basal area, finely punctulate with a mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum densely punctulate, without foveolae; median sulcus of metasternum one-fourth as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate with few deep foveolae over surface, without transverse, fusiform, curved, and striate file; metepisternal sulcus forming slightly obtuse angle with transverse axis slightly arcuate and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, foveolate and setose in lateral three-fourths, remaining one-fourth polished and impunctate except for small cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, three-fourths as long as basitarsus; mesal calcarium two-thirds as long as lateral calcarium.

Abdomen. Sterna finely punctulate with short lines of foveolae laterally on 2nd and 4th sterna; 5th sternum truncate at apex; pygidium with terminal margin rounded, surface finely punctulate, with deep foveolae, each foveola with black seta.

Size. Length (pronotum-elytra) 4.1-4.3 mm. Width 2.6-2.7 mm. Maximum thoracic depth 2.0-2.1 mm.

Genitalia (figures 42, 43). Median lobe constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve subcampanulate, concave at base; armature of internal sac with two basal, thin, spiny sclerites; pair of mesal, small, falcate and serrate blades; H-shaped sclerite and two apical, angular, spiny sclerites; apex of internal sac lined with rows of fine spinules (figure 42). Lateral lobes cleft to about one-tenth their length (figure 43).

Female

None available.

Host Plants

Old Records: *Banisteriopsis cornifolia* H.B.K.: Kingsolver 1980:237; Janzen 1980:947; Udayagiri and Wadhi 1989:12. *Heteropterys beechyana* A. Juss.: Kingsolver 1980:237; Janzen 1980:947; Udayagiri and Wadhi 1989:12.

New Record: None.

Distribution

Old Records: Costa Rica, El Salvador, Mexico, Panama (Kingsolver 1980).

Discussion

This species is in the Multiflocculus group. It has a distinctive pattern of external pubescence and sclerites in the internal sac. The Central and South American species *A. geminatus* probably belongs to the group because it has a very similar pattern of pubescence and feeds in a species in the same genus, *Banisteriopsis muricata.*

Amblycerus nigromarginatus (Motschulsky)

Spermophagus nigromarginatus Motschulsky 1874:249 (Type: Surinam; Zoological Museum, Moscow); Bondar 1931:88; Zacher 1952:468,472.
Amblycerus nigromarginatus: Bridwell 1944:135; Blackwelder 1946:763; Center and Johnson 1974:1097; Johnson and Kingsolver 1975:328; Udayagiri and Wadhi 1989:12; Ribeiro-Costa and Marinoni 1992:130; Ribeiro-Costa 1992:163; Ribeiro-Costa and Kingsolver 1992:183.

Male

Integument Color. Dark red except lateral and posterior margins of elytron, humeri of pronotum, head, antenna, prosternum, mesosternum, metasternum, legs, abdomen, and pygidium which are darker or almost black; this latter coloration is variable; eyes shiny black.

Vestiture. Pronotum and elytron covered with yellowish hairs, forming faint stripes of denser hairs to produce an orange cast, to stripes with small scattered spots of black hairs; venter covered with whitish hairs; each abdominal sternum with spot of dense yellowish hairs on lateral margins; pygidium with faint, central, longitudinal line of dense yellowish hairs.

Head. Elongate, covered with dense punctures; frons with faint median linear carina extending from frontoclypeal suture to vertex. Eye ovoid, cleft to one-third its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna three and two-tenths times as long as 2nd; 3rd segment one and seven-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching middle of hind coxa. Clypeus covered with fine punctures. Labrum with few punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; lateral carina of pronotum not reaching cervical sulcus. Dorsal surface of pronotum punctulate with foveolae concentrated on lateral areas; cervical sulcus fine, extending dorsad almost to midline, with two cervical setae. Prosternum flat, constricted between coxae, carinate laterally, rounded at apex; proepisternum densely setose, finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum triangular, finely punctulate, densely setose. Elytron three times as long as broad; striae regular, moderately impressed and punctulate; strial intervals punctured. Mesosternum finely punctulate, tonguelike in basal area. Mesepisternum and mesepimeron densely setose, finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae and without transverse, fusiform, curved, and striate file; metepisternal sulcus forming slightly obtuse angle, with transverse axis slightly curved and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, foveolate, setose in lateral one-half and along posterior border, remaining one-half polished and impunctate except for small cluster of

punctures near trochanteral insertion; foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, two-thirds as long as basitarsus; mesal calcarium two-thirds as long as lateral calcarium; basitarsus with small tooth at apex.

Abdomen. Sterna finely punctulate, with row of foveolae on surface; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, foveolate.

Size. Length (pronotum-elytra) 4.8-5.6 mm. Width 2.7-3.1 mm. Maximum thoracic depth 2.0-2.4 mm.

Genitalia (figures 44, 45). Median lobe constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve slightly narrower and concave at base; armature of internal sac with two small, basal spines; two ovoid, strongly spiny sclerites, and apical lance-shaped sclerite flanked by two large blade-like sclerites curved basally; internal sac lined in mesal region with two sizes of spinules, basal portion with a cluster of setae (figure 44). Lateral lobes cleft to about one-tenth their length (figure 45).

Female

Similar to male except 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 5.6-5.8 mm. Width 3.3 mm. Maximum thoracic depth 2.4-2.5 mm.

Host Plants

Old Records: *Caesalpinia* spp.: Zacher 1952:472, Udayagiri and Wadhi 1989:12. *Cassia* spp.: Zacher 1952:472. *Cassia alata* (L.): Zacher 1952:472; Udayagiri and Wadhi 1989:12. *C. bicapsularis* (L.): Zacher 1952:472; Udayagiri and Wadhi 1989:12. *C. corymbosa:* Ribeiro-Costa 1992:164. *C. occidentalis* (L.): Anonymous 1941:8; Zacher 1952:472; Udayagiri and Wadhi 1989:12. *C. splendida* (Vogel): Zacher 1952:472; Udayagiri and Wadhi 1989:12. *C. uniflora* (P. Miller) (= *C. sericea*): Zacher 1952:472; Udayagiri and Wadhi 1989:12.

New Record: None.

Distribution

Old Record: Surinam (Motschulsky 1874).

New Records: Brazil, Colombia, United States.

Discussion

A. nigromarginatus is closely related to *A. obscurus,* and together they form the Obscurus group. These species have almost the same type and pattern of vestiture, and the external morphology also is very similar. The sclerites of the internal sac are of the same number and almost with the same shape except for the size of basal spines and quantity of spinules lining the internal sac. They also share some host plants in the family Leguminosae.

The Obscurus group is closely related to the Hoffmanseggi group, delineated by Ribeiro-Costa and Marinoni (1992), a group so far found only in South America.

Amblycerus obscurus (Sharp)

Spermophagus obscurus Sharp 1885:495 (Type: Central America; The Museum of Natural History, London).
Amblycerus obscurus: Bridwell 1944:135; Blackwelder 1946:763; Janzen 1980:933; Pfaffenberger 1985:2; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:12; Ribeiro-Costa and Kingsolver 1992:183.

Male

Integument Color. Body and appendages dark red; occasionally with lateral and apical margins of elytron, humeri of pronotum, head, antenna, prosternum, mesosternum, metasternum, legs, abdomen, and pygidium dark to almost black. Pygidium with large, oval, dark spot; eyes shiny black or silvery.

Vestiture. Pronotum and elytron covered with yellowish hairs, forming faint stripes of dense hairs, elytron with small spots of black hairs; venter covered with whitish hairs; all abdominal sterna with one faint spot of dense hairs on lateral margins; pygidium with a faint, longitudinal line of dense hairs.

Head. Subtriangular, covered with dense punctures; frons usually without median linear carina, sometimes with faint impunctate median line. Eye ovoid, cleft to three-tenths its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna three and four-tenths times as long as 2nd; 3rd segment two times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching middle of hind coxa. Clypeus covered with fine punctures. Labrum with very few punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; lateral carina weak, not reaching cervical sulcus. Dorsal surface of pronotum punctulate, with foveolae concentrated only on lateral areas; cervical sulcus fine, extending dorsad almost to midline, with two cervical setae. Prosternum flat, constricted between coxae; proepisternum finely punctulate without foveolae.

Mesothorax and Metathorax. Scutellum subtriangular, finely punctulate, densely setose, rounded apically. Elytron two and eight-tenths times as long as broad; striae regular, moderately impressed and punctulate; strial intervals punctured. Mesosternum finely punctulate, tonguelike in basal area. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum four-tenths as long as sternum, sometimes shorter; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae and without transverse, fusiform, curved, and striate file; metepisternal sulcus forming right angle, with transverse axis slightly curved, may or may not reach lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, foveolate, and setose in lateral two-thirds and along posterior border, remaining one-third polished and impunctate except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, three-fourths as long as basitarsus; mesal calcarium one-half as long as lateral calcarium; basitarsus with small tooth at apex.

Abdomen. Sterna finely punctulate, each with row of foveolae laterally; abdomen with two rows of long setae mesally, sometimes setae weakly developed; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, foveolate.

Size. Length (pronotum-elytra) 4.6-6.4 mm. Width 2.5-3.6 mm. Maximum thoracic depth 2.0-2.9 mm.

Genitalia (figures 46, 47). Median lobe constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve slightly narrower and concave at base; armature of internal sac with two basal spine-shaped sclerites, in some may be indistinct or absent; two ovoid, strongly spiny sclerites, and apical lanceolate sclerite flanked by two large blade-like sclerites curved basally; internal sac lined with fine to small spinules (figure 46). Lateral lobes cleft to one-tenth their length (figure 47).

Female

Similar to male except 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 4.9-6.0 mm. Width 2.8-3.4 mm. Maximum thoracic depth 2.0-2.7 mm.

Host Plants

Old Records: *Cassia leptocarpa* Bentham: Janzen 1980:947. *C. obtusifolia* L.: Janzen 1980:947. *C. uniflora* Mill.: Janzen 1980:947.

New Records: *Cassia alata* L.: ***Mexico.*** Oaxaca: Interc. from Oaxaca, III-01-1960, Davidson et al. collectors. *C. bicapsularis* L.: ***Mexico.*** Sinaloa: 3 mi NE Los Mochis, VIII-20-1965, C.D. Johnson collector. *C. occidentalis* (L.): ***Mexico***. Guerrero: 24 km W Tecpan, XII-28-1979, (CDJ #1148-79). *C. pendula advena* (Willd.): (= *Cassia indecora*): ***Mexico.*** Campeche: 39 km SW Francisco Escarcega, XII-26-1978, (CDJ #397-78). ***Colombia.*** Valle del Cauca: 5 km E Palmira, VII-16-1982, (CDJ #2427-82). *C. pendula ovalifolia* (Willd.): ***Mexico.*** Veracruz: 4 km NE Catemaco, III-1-1980, (CDJ #1570-80).

Distribution

Old Records: British Honduras (now Belize), Guatemala, Mexico, Panama (Johnson and Kingsolver 1981).

New Records: Costa Rica, Colombia.

Discussion

This species is closely related to *A. nigromarginatus.* See discussion of *A. nigromarginatus* for similarities and differences between these species.

Amblycerus perfectus (Sharp)

Spermophagus perfectus Sharp 1885:498 (Type: Mexico, Tehuantepec; The Museum of Natural History, London).
Amblycerus perfectus: Blackwelder 1946:763; Janzen 1977:418; Janzen 1978:184; Kingsolver 1980:235; Janzen 1980:947; De Luca 1980:40; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:12.

Male

Integument Color. Body and appendages reddish or dark red; pygidium with darker spot, sometimes difficult to see because it is covered with golden hairs; eyes shiny black or piceous.

Vestiture. Body covered with golden hairs with small spots of black hairs scattered on pronotum and elytron; small spots of black hairs may be present on metepisternum, metacoxa, abdomen, and pygidium; sometimes with four faint stripes of dense golden hairs on pronotum.

Head. Elongated, densely punctulate; frons without median linear carina, sometimes with median impunctate line. Eye ovoid, cleft to one-fourth its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna one and eight-tenths times as long as 2nd; 3rd segment one and three-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna not reaching anterior margin of hind coxa. Clypeus covered with fine punctures. Labrum with row of fine punctures and hairs on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate with fine foveolae scattered on surface, except on longitudinal median line; lateral carina reaching cervical sulcus; cervical sulcus fine, extending dorsad almost to midline, with three cervical setae. Prosternum flat, constricted between coxae, rounded apically; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum elongate, finely punctulate, densely setose, one and three-tenths times as long as wide, weakly tridentate at apex. Elytron two and one-half times as long as broad; striae regular, well impressed, hardly punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area, with a mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae and without transverse, fusiform, curved, and striate file; metepisternal sulcus forming right angle, with transverse axis straight and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, foveolate, and setose in lateral two-thirds and along posterior border, mesal one-third polished and impunctate except for a cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; lateral tibial calcarium curved, three-fourths as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate, 1st to 4th sterna with sinuate row of foveolae; 5th sternum emarginate at apex; pygidium with terminal margin rounded, surface punctulate, with fine foveolae.

Size. Length (pronotum-elytra) 3.2-5.6 mm. Width 1.9-3.3 mm. Maximum thoracic depth 1.4-2.7 mm.

Genitalia (figures 48, 49). Median lobe with lateral margins almost straight; ventral valve acuminate at apex, slightly arcuate in lateral view; dorsal valve narrower and strongly concave at base; armature of internal sac with two basal, linear, spiny sclerites; two median, long, spiny sclerites; median wishbone-shaped sclerite with fine spines; apical tubular-shaped sclerite, and small, median, angular sclerites scattered; internal sac with basal cluster of setae (figure 48). Lateral lobes cleft to two-tenths their length (figure 49).

Female

Similar to male except 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 4.0-5.6 mm. Width 2.3-3.3 mm. Maximum thoracic depth 1.9-2.6 mm.

Host Plants

Old Record: *Combretum farinosum* H.B.K.: Janzen 1977:418, 1978:184; Kingsolver 1980:235.

New Record: *Desmodium cinereum* (H.B.K.) DC.: ***Mexico.*** Chiapas: 5 mi SE Pijijiapan, III-12-1979 (CDJ #770-79).

Distribution

Old Records: Mexico (Sharp 1885; Johnson and Kingsolver 1981). Costa Rica (Kingsolver 1980).

New Record: Honduras.

Discussion

A. perfectus has a very characteristic vestiture, and some of the sclerites in the internal sac are very typical. This species is the only Mexican species in the Perfectus group. This group may be related to the Piurae group (presently including only *A. piurae*) because of the presence of a frontal carina, the metepisternal sulcus forming a right angle, and the transverse axis of the metepisternal sulcus being straight. In the internal sac of *A. perfectus* the median, long, spiny sclerites are similar to the sclerites of *A. piurae.* Both species feed on species of Leguminosae (but see below).

The host record of *Desmodium cinereum* should be verified because the seeds of this species are very small and probably could not support the development of *A. perfectus. Combretum farinosum* has much larger seeds than *Desmodium cinereum.*

Amblycerus pictus (Sharp)

Spermophagus pictus Sharp 1885:502 (Type: Mexico, Veracruz; The Museum of Natural History, London).
Amblycerus pictus: Blackwelder 1946:764; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:13.

Male

Integument Color. Body red or dark red except apical six to seven antennal segments black; sometimes with darker metasternum, metepisternum, and calcaria; eyes silvery or brownish.

Vestiture. Pronotum, elytron, and pygidium with yellowish, whitish, and black hairs arranged in fine mottled pattern; metepisternum and metacoxa clothed with whitish hairs and spots of yellowish or black hairs; abdominal sterna covered with whitish hairs with spots of brown or black hairs.

Head. Elongated, densely punctulate; frons without median linear carina, sometimes with short impunctate median line. Eye ovoid, cleft to one-half its length by ocular sinus. First segment of antennae one and one-half times as long as 2nd; 3rd segment one and four-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching middle of hind coxa. Clypeus covered with punctures except for a polished band on apical margin. Labrum with few punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate, with foveolae on lateral areas; lateral carina of pronotum reaching cervical sulcus; cervical sulcus fine, extending dorsad almost to midline, with three cervical setae. Prosternum flat, constricted between coxae, carinate laterally; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum elongate, finely punctulate, triangular, densely setose, sharp at apex. Elytron two and six-tenths times as long as broad; striae regular, well impressed and weakly punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum one-half as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad, and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae and without transverse, fusiform, curved, and striate file; metepisternal sulcus forming slightly obtuse angle, with transverse axis straight and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, finely foveolate, and setose in lateral two-thirds and along posterior border, mesal one-third polished and impunctate, except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, three-fourths as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate, without foveolae; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded, surface punctulate, finely foveolate.

Size. Length (pronotum-elytra) 3.6-4.7 mm. Width 2.3-3.0 mm. Maximum thoracic depth 1.7-2.4 mm.

Genitalia (figures 50, 51). Median lobe strongly constricted on lateral margins; ventral valve acuminate at apex, sinuate in lateral view; dorsal valve narrower and strongly concave at base; armature of internal sac with two basal, multituberculate sclerites; two long median blades serrate on lateral margins, occupying more than one-half the length of median lobe; wishbone-shaped sclerite dentate apically, and two apical, linear sclerites at apex (figure 50). Lateral lobes cleft to two-tenths their length, pair of small pads clothed with fine pubescence between lateral lobes (figure 51).

Female

Similar to male except 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 3.6-4.8 mm. Width 2.3-3.1 mm. Maximum thoracic depth 1.8-2.7 mm.

Host Plants

Unknown.

Distribution

Old Records: Mexico (Sharp 1885; Johnson and Kingsolver 1981).

New Record: Panama.

Discussion

This species was discussed with *A. barcenae.*

Amblycerus piurae (Pierce)

Spermophagus piurae Pierce 1915:8 (Holotype: Peru; USNMNH); Zacher 1952:468,478.

Amblycerus piurae: Bridwell 1944:135; Blackwelder 1946:763; Johnson 1968:1268; Ward et al. 1977:5; Kingsolver et al. 1977:115; Johnson 1983b:34; Johnson 1983c:28; Johnson 1983d:32; Udayagiri and Wadhi 1989:13.

Male

Integument Color. Integument may vary from yellowish to dark red; some with frons, vertex, antennae, lateral and apical margins of pronotum, basal and mesal regions of elytron, venter, and legs darker than rest of body; pygidium varies from yellowish to obscure, some specimens having a median black spot of variable size; eyes silvery or brownish.

Vestiture. Body covered with golden hairs; each abdominal sternum with one spot of dense golden hairs on lateral margins; pygidium sometimes with very faint median line of dense hairs.

Head. Subtriangular, covered with punctures; frons smooth, without median linear carina. Eye ovoid, cleft to two-tenths its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two and eight-tenths times as long as 2nd; 3rd segment one and seven-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with punctures. Labrum with few punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; lateral carina not reaching cervical sulcus. Dorsal surface of pronotum punctulate, without foveolae; cervical sulcus fine, extending dorsad almost to midline, with three cervical setae. Prosternum flat and constricted between coxae; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum triangular, finely punctulate, and densely setose. Elytron two and eight-tenths as long as broad; striae regular, moderately impressed and punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tongue-like in basal region. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum one-half as long as sternum, becoming obscure near anterior margin; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad, and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae and without transverse, fusiform, curved, and striate file; metepisternal sulcus forming right angle, with transverse axis straight and not reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, finely foveolate, setose in lateral two-thirds and along posterior border, remaining one-third polished and impunctate except for small cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium curved, one-half as long as basitarsus; mesal calcarium two-thirds as long as lateral calcarium.

Abdomen. Sterna finely punctulate, with row of foveolae on lateral margins; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, without foveolae.

Size. Length (pronotum-elytra) 5.1-5.7 mm. Width 2.9-3.3 mm. Maximum thoracic depth 2.4 mm.

Genitalia (figures 52, 53). Median lobe constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and concave at base, basal arms cleft at apices; armature of internal sac with basal, rounded, finely multituberculate sclerite; medially with wishbone-shaped sclerite; two mesal J-shaped sclerites; two apical V-shaped sclerites, and two linear spiny sclerites; internal sac with apical cluster of small spicules; lined with small scale-like spinules mesally (figure 52). Lateral lobes cleft to fifteen-hundredths their length (figure 53).

Female

Similar to male except antenna shorter, reaching anterior margin of hind coxa, and 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 5.1-6.3 mm. Width 2.9-3.5 mm. Maximum thoracic depth 2.4-2.6 mm.

Host Plants

Old Records: *Gossypium* spp.: Pierce 1915:8; Zacher 1952:478. *Prosopis* spp.: Kingsolver et al. 1977:115; Udayagiri and Wadhi 1989:13. *Ceratonia siliqua* L.: Anonymous 1943:7.

New Records: Carob pods (= *Ceratonia siliqua*?): ***Mexico.*** Interc. X-1977. *Prosopis juliflora* (Sw.)DC.: ***Ecuador.*** Interc. VII-03-1979.

Distribution

Old Record: Peru (Pierce 1915).

New Record: Ecuador, Mexico, Venezuela.

Discussion

This species was discussed with *A. perfectus.*

The only verified host record for *A. piurae* is *Prosopis juliflora.* The other host plants reported in the literature and in Appendixes 2 and 3 should be confirmed.

Amblycerus pterocarpae Kingsolver

Amblycerus pterocarpae Kingsolver 1980:237 (Holotype: Costa Rica, Santa Rosa National Park, Guanacaste Prov.; USNMNH); Janzen 1980:947; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:13.
A. pterocarpi (sic): Janzen 1980:941.

Male

Integument Color. Body reddish brown except labrum, antennae, prosternum, mesosternum, metasternum, metepisternum, coxa, trochanter, femur, and tibia brown to black; some with metatibial calcaria and apices of metafemur and metatibia obscured; eyes silvery or reddish dark.

Vestiture. Entirely covered with golden hairs; two bare spots on vertex.

Head. Elongated and densely punctulate; frons without median linear carina, sometimes with short impunctate line. Eye ovoid, cleft to three-tenths its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two and four-tenths times as long as 2nd; 3rd segment one and eight-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with punctures except for narrow polished band on apical margin. Labrum with row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; lateral carina not reaching cervical sulcus; surface of pronotum punctulate with foveolae concentrated on lateral margins; cervical sulcus fine, extending dorsad almost to midline, with three cervical setae. Prosternum flat, constricted between coxae, rounded apically; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum elongate, finely punctulate, sparsely setose, two times as long as wide, tridentate at apex. Elytron two and six-tenths times as long as broad; striae regular, vague impressions principally on basal portion, and deeply punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae and without transverse, fusiform, curved, and striate file; metepisternal sulcus almost forming right angle, with transverse axis slightly curved and not reaching lateral margin of metepi- sternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, foveolate and setose in lateral three-fourths and along posterior border, remaining one-fourth polished and impunctate except for a small cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium curved, two-thirds as long as basitarsus; mesal calcarium four and seven-tenths as long as lateral calcarium.

Abdomen. Sterna finely punctulate, with a few long setae mesally; 1st to 4th sterna with row of foveolae laterally; 5th sternum emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, with foveolae.

Size. Length (pronotum-elytra) 6.2-7.6 mm. Width 3.6-4.4 mm. Maximum thoracic depth 2.7-3.3 mm.

Genitalia (figures 54, 55). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and strongly concave at base; armature of internal sac with two basal, ovoid sclerites dentate on apical margins, and median wishbone-shaped sclerite flanked by two spindle-shaped sclerites, denticulate on dorsal margin (figure 54). Lateral lobes cleft to one-fourth their length, pair of small pads clothed with fine pubescence between lateral lobes (figure 55).

Female

Similar to male except 5th abdominal sternum not emarginate at apex; pygidium slightly emarginate apically.

Size. Length (pronotum-elytra) 5.9-7.3 mm. Width 3.2-4.3 mm. Maximum thoracic depth 2.5-3.1 mm.

Host Plants

Old Record: *Pterocarpus rohrii* Vahl.: Kingsolver 1980:238; Janzen 1980:947; Udayagiri and Wadhi 1989:13.

New Record: None.

Distribution

Old Record: Costa Rica (Kingsolver 1980).

New Record: Mexico.

Discussion

This species constitutes the Pterocarpae group because of its characteristic pattern of external pubescence and sclerites in the internal sac.

Amblycerus pygidialis (Suffrian)

Spermophagus pygidialis Suffrian 1870:169 (Type: Cuba; USNMNH).
Amblycerus pygidialis: Blackwelder 1946:763; Kingsolver 1970b:486; Kingsolver 1979:341; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:13.
Amblycerus chapini Kingsolver 1970b:481 (Holotype: Jamaica, on coast 23 mi. E of Kensington; USNMNH); Kingsolver 1979:341.

Male

Integument Color. Body uniformly yellowish red to reddish; eyes black or piceous.

Vestiture. Body covered with yellowish hairs; pronotum elytron, metepisternum, metacoxa, and abdomen with small spots of brown hairs arranged in fine mottled pattern; pygidium with large, oval, dark spot, flanked laterally and basally by bands of yellowish hairs; on head two bare spots on vertex.

Head. Elongated, covered with punctures; frons smooth, without median linear carina. Eye ovoid, cleft to two-tenths its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two times as long as 2nd; 3rd segment one and four-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching middle of hind coxa. Clypeus covered with punctures except for narrow polished band on apical margin. Labrum with row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate, with fine foveolae scattered over surface or restricted to lateral margins; cervical sulcus absent, without cervical setae. Prosternum flat, constricted between coxae; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, densely setose, two times as long as wide, slightly bidentate at apex. Elytron two and three-tenths times as long as broad; striae regular, moderately impressed and punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad, and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae and without transverse, fusiform, curved, and striate file; metepisternal sulcus forming right angle, with transverse axis straight and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, deeply foveolate and setose in lateral one-half, remaining one-half polished and impunctate except for small cluster of punctures near trochanteral insertion, foveolae and cluster of punctures contiguous or nearly so; metafemur without angulate tooth on ventral margin; lateral tibial calcarium straight, one-half as long as basitarsus; mesal calcarium three-fourths as long as lateral calcarium.

Abdomen. Sterna finely punctulate, 1st to 4th sterna with small row of fine foveolae laterally; 5th sternum emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, with foveolae.

Size. Length (pronotum-elytra) 3.3-4.2 mm. Width 1.9-2.8 mm. Maximum thoracic depth 1.4-2.0 mm.

Genitalia (figures 56, 57, 58). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and concave at base; armature of internal sac with basal, large, bent sclerite with two lobules apically, flanked by two falcate, dentate sclerites; median wishbone-shaped sclerite flanked by two thin, sinuate sclerites, serrate on lateral margins; cluster of setae basally (figures 56, 57). Lateral lobes strongly pubescent on internal face, cleft to four-tenths their length (figure 58).

Female

None available.

Host Plants

Old Record: *Cordia gerascanthus:* Kingsolver 1970b:482; Udayagiri and Wadhi 1989:14. *Luehea speciosa:* Rodriguez 1975:29; Udayagiri and Wadhi 1989:14.

New Record: None.

Distribution

Old Records: Cuba, Jamaica (Suffrian 1870; Kingsolver 1970b).

New Record: Mexico.

Discussion

This species is discussed with *A. veracruz.* The host record of *Luehea speciosa* for *A. pygidialis* should be verified. The only bruchid reliably reported to feed in this host is *Amblycerus simulator* (Jacquelin-Duval) (Kingsolver 1970b).

Amblycerus robiniae (Fabricius)

Bruchus robiniae Fabricius 1781:75 (Type: United States; Zoologisk Museum, Denmark); Bridwell 1946:56.
Spermophagus robiniae: Gyllenhal 1833:104; Riley 1871:45; Horn 1873:312; Sharp 1885:492; Horn 1885:157; Horn 1886:XI; Horn 1894:411; Riley and Howard 1892:166; Schaeffer 1904:229; Blatchley 1910:1235; Cushman 1911:504,505; Leng 1920:306; Bradley 1946:97; Zacher 1952:468,472,474.
Amblycerus robiniae: Bridwell 1932:106; Bissell 1938:536; Bridwell 1944:133,135; Peck 1963:956; Bottimer 1968:1009,1012; Janzen 1969:9; Kingsolver 1970a:382,383; Mathwig 1972:200; Kingsolver 1975:35; De Luca 1977:8; Pfaffenberger 1979:231; Southgate 1981:19; Johnson and Kingsolver 1981:410; Terán 1984:213; Johnson 1985:208; Borowiec 1987:60; Pfaffenberger 1985:2; Udayagiri and Wadhi 1989:14.
Chrysomela gleditsiae Castiglioni 1790:253; Kingsolver 1979:341.

Male

Integument Color. Body and appendages dark red, with scattered black spots on pronotum, elytron, metasternum, metepisternum, metacoxa, and abdomen; pygidium with irregular, black spot; eyes shiny black.

Vestiture. Body covered with golden and white hairs arranged in fine mottled pattern, except legs are clothed only with white hairs; each abdominal sternum with one bigger spot of dense whitish hairs on lateral margins, these flanked by golden hairs.

Head. Elongated, densely setose, covered with fine punctures, evenly punctulate with slightly longer punctures; frons with prominent median linear carina extending from frontoclypeal suture to vertex, sometimes only with impunctate line. Eye ovoid, cleft to three-tenths its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two and four-tenths times as long as 2nd; 3rd segment one and eight-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered densely with many fine punctures and interrupted with some larger punctures. Labrum with few scattered punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; lateral carina not reaching cervical sulcus. Dorsal surface of pronotum finely punctulate with strong foveolae scattered on surface; cervical sulcus very fine, extending dorsad almost to midline, with three cervical setae. Prosternum constricted between coxae, densely setose apically; proepisternum punctulate, with few fine foveolae on apical one-half.

Mesothorax and Metathorax. Scutellum elongate-triangular, finely punctulate, sparsely setose, two times as long as wide, with one small tooth at apex. Elytron two and six-tenths times as long as broad; striae regular, moderately impressed and deeply punctulate; strial intervals finely punctured. Mesepisternum and mesepimeron finely punctulate, with large scattered foveolae. Mesosternum punctulate, tonguelike in basal area, with mesal sulcus for reception of prosternal process. Metasternum punctulate, with some fine foveolae; median sulcus of metasternum one-half as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum

punctulate, with large foveolae on surface, without transverse, fusiform, curved, and striate file; metepisternal sulcus forming right angle, with transverse axis straight, not reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, with some scattered foveolae; surface of hind coxa densely punctulate, deeply foveolate, setose in lateral two-thirds and along posterior border, remaining one-third polished and impunctate except for a cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium curved, two-thirds as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate, with large foveolae; sterna with a few, long setae mesally; 5th sternum emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, with foveolae.

Size. Length (pronotum-elytra) 4.4-7.3 mm. Width 2.4-3.9 mm. Maximum thoracic depth 1.8-3.0 mm.

Genitalia (figures 59, 60). Median lobe constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and strongly concave at base; armature of internal sac with basal U-shaped sclerite; two median, thin, angulate sclerites; median and basal areas lined densely with spinules (figure 59). Lateral lobes cleft to one-fourth their length (figure 60).

Female

Similar to male except 5th abdominal sternum not emarginate at apex and pygidium trilobed at apical margin.

Size. Length (pronotum-elytra) 5.0-7.1 mm. Width 2.7-4.0 mm. Maximum thoracic depth 2.1-3.1 mm.

Host Plants

Old Records: *Acacia adansonii* Guill.: Anonymous 1940:51. *Gleditsia aquatica* Marsh: Cushman 1911:504; Zacher 1952:472; Udayagiri and Wadhi 1989:14. *G. triacanthos* L.: Riley and Howard 1892:166; Cushman 1911:504; Bissell 1938:536; Zacher 1952:472; Mathwig 1972:200; Udayagiri and Wadhi 1989:14. *Robinia pseudoacacia* L.: Fabricius 1781:75; Zacher 1952:474; Lukianovich and Ter-Minasian 1957:34; Udayagiri and Wadhi 1989:14.

New Record: None.

Distribution

Old Records: United States (Johnson and Kingsolver 1981).

New Record: Mexico.

Discussion

This species is closely related to *A. acapulcensis* because of the similarities in external morphology and the sclerites in the internal sac. Species now placed in the Robiniae group are *A. acapulcensis, A. ireriae, A. robiniae,* and *A. taeniatus* (Suffrian), recorded from Cuba but not included in this revision. Host plants of *A. robiniae, A. acapulcensis,* and *A. taeniatus* are in the Leguminosae.

The only verified host records for *A. robiniae* are *Gleditsia triacanthos* and *G. aquatica* (according to J.M. Kingsolver there are many unpublished records of *A. robiniae* reared from seeds of *G. aquatica* in the USNMNH). Host plants reported in the literature for *A. robiniae* are inaccurate at best and should be confirmed.

Amblycerus sallei (Jekel)

Spermophagus sallei Jekel 1855:30 (Type: St. Domingo; The Museum of Natural History, London).
Amblycerus sallei: Blackwelder 1946:763; Kingsolver 1970b:486; Kingsolver 1981:443; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:14.
Amblycerus martorelli Bridwell 1944:133 (Holotype: Guánica, Puerto Rico; USNMNH); Blackwelder 1946:762; Johnson 1968:1268; Kingsolver 1970b:479; Ward et al. 1977:5; Kingsolver 1980:233; Kingsolver 1981:443; Johnson 1983b:34; Johnson 1983c:28; Johnson 1983d:32; Udayagiri and Wadhi 1989:12; Ribeiro-Costa 1992:154.
Spermophagus martorelli: Zacher 1952:468.

Male

Integument Color. Entirely red or dark red; eyes piceous.

Vestiture. Body covered with golden hairs; sometimes with faint stripes of dense hairs on pronotum and elytron and small glabrous spots scattered on elytron; sometimes with narrow, median stripe of dense hairs on pygidium.

Head. Subtriangular and densely punctulate; frons smooth without prominent median linear carina. Eye ovoid, cleft to three-tenths its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two and eight-tenths times as long as 2nd; 3rd segment one and one-half times as long as 2nd; remaining segments two times as long as 2nd; antenna reaching anterior margin of hind coxa. Clypeus covered with punctures. Labrum with row of fine punctures on basal margin, remainder polished.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of prothorax punctulate with fine foveolae on lateral areas; lateral carina not reaching cervical sulcus; cervical sulcus fine, extending dorsad almost to midline, with two cervical setae. Prosternum flat and constricted between coxae; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, densely setose with golden hairs, about two and one-half times as long as wide, subacute apically or weakly tridentate. Elytron two and nine-tenths times as long as broad; striae regular, moderately impressed and punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate with few fine foveolae, sometimes foveolae indistinct, without transverse, fusiform, curved, and striate file; metepisternal sulcus forming obtuse angle, with transverse axis straight and not reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, foveolate, and setose in lateral two-thirds and along posterior border, mesal one-third polished and impunctate except for small cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on

ventral margin; lateral tibial calcarium slightly curved, one-half as long as basitarsus; mesal calcarium three-fourths as long as lateral calcarium.

Abdomen. Sterna finely punctulate, with rows of foveolae laterally; sterna with a few long setae mesally; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, with foveolae.

Size. Length (pronotum-elytra) 4.6-5.9 mm. Width 2.6-3.3 mm. Maximum thoracic depth 2.0-2.6 mm.

Genitalia (figures 61, 62). Median lobe strongly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve slightly narrower and concave at base, arcuate in lateral view; armature of internal sac with two basal, prominent, dark, curved sclerites flanked by convoluted dark masses; boat-shaped median sclerite, and pair of small, angulate, apical sclerites (figure 61). Lateral lobes cleft to one-fourth their length (figure 62).

Female

Similar to male except 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 4.6-6.2 mm. Width 2.5-4.3 mm. Maximum thoracic depth 1.9-3.0 mm.

Host Plants

Old Record: *Prosopis juliflora* (= *chilensis*): Bridwell 1944:134; Zacher 1952:471; Kingsolver 1970b:480; Ward et al. 1977:5; Udayagiri and Wadhi 1989:12.

New Record: None.

Distribution

Old Records: Dominican Republic, Haiti, Hispaniola, Jamaica, Puerto Rico (Jekel 1855; Kingsolver 1970b; Johnson and Kingsolver 1981).

New Records: Colombia, Mexico, Venezuela.

Discussion

A. sallei is closely related to *A. epsilon* because both have similar external morphology and vestiture, and to identify them using only external features is difficult. Sclerites in the internal sac are similar but the size and shape of the basal curved sclerites and the boat-shaped median sclerite are distinctly different between the species (figures 25, 61).

Amblycerus schwarzi Kingsolver

Amblycerus schwarzi Kingsolver 1970b:477 (Holotype: Puerto Rico. Guánica; USNMNH); Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:14; Johnson and Siemens 1991:165.

Male

Integument Color. Body reddish brown; eyes shiny black.

Vestiture. Head with fine hairs, usually with two bare spots on vertex. Body covered with yellowish-gray hairs; elytron with some scattered spots of brown hairs; each of first four abdominal sterna with small spot of brown hairs laterally.

Head. Subtriangular with small punctures; frons smooth without median linear carina. Eye ovoid, cleft to one-tenth its length by ocular sinus. First segment of antenna three and one-tenth times as long as 2nd; 3rd segment one and four-tenths times as long as 2nd; remaining segments more or less with proportions of 1st; antenna reaching anterior margin or hind coxa. Frontoclypeal suture indistinct or absent. Clypeus covered with many dense fine punctures, interrupted by some larger punctures. Labrum smooth, without punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex and carinate at its basal margin. Dorsal surface of pronotum finely punctulate with foveolae scattered on all surfaces; lateral carina faint, not reaching cervical sulcus; cervical sulcus shallow, with two cervical setae. Prosternum flat and constricted between coxae; proepisternum finely punctulate, with strong foveolae.

Mesothorax and Metathorax. Scutellum two times as long as wide, sulcate at basal half, finely punctulate except at middle, densely setose, weakly tridentate at apex. Elytron three times as long as broad; striae regular, well impressed, punctulate; strial intervals finely punctured; elytra slightly depressed around scutellum. Mesosternum finely punctulate, tonguelike in basal area with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum densely punctulate, with foveolae scattered over surface; median sulcus of metasternum one-half as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad, and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate with strong foveolae, without transverse, fusiform, curved, striate file; metepisternal sulcus forming obtuse angle, with transverse axis straight and without reaching lateral margin of metepisternum. Middle and hind legs with femur densely punctulate, without foveolae; surface of hind coxa densely punctulate, foveolate, and setose in lateral one-half and along posterior border, remaining one-half polished and punctulate except for large cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, eight-tenths as long as basitarsus; mesal calcarium four-tenths as long as lateral calcarium.

Abdomen. Sterna finely punctulate, with foveolae; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, with large foveolae.

Size. Length (pronotum-elytra) 5.0-5.7 mm. Width 2.8-3.2 mm. Maximum thoracic depth 2.1-2.5 mm.

Genitalia (figures 63, 64, 65). Median lobe with slightly sinuate lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve slightly narrowed, concave at base, arcuate in lateral view; armature of internal sac with two basal, irregular sclerites serrate on posterior margin; median sclerite complex consisting of J-shaped median sclerite, carinate dorsally, acute posteriorly, flanked by palmate, foliate sclerites; membrane of internal sac lined with denticles medially (figures 63, 64). Lateral lobes cleft to one-fourth their length (figure 65).

Female

Similar to male.

Size. Length (pronotum-elytra) 5.3-6.5 mm. Width 3.0-3.6 mm. Maximum thoracic depth 2.5-3.0 mm.

Host Plants

Old Records: *Hippomane mancinella* L.: Kingsolver 1970b:477; Udayagiri and Wadhi 1989:15. *Ricinus communis* L.: Kingsolver 1970b:477; Udayagiri and Wadhi 1989:15. *Tectona grandis* L.: Kingsolver 1970b:477; Udayagiri and Wadhi 1989:15; Johnson and Siemens 1991:165.

New Record: None.

Distribution

Old Records: Cuba, Curaçao, Grand Cayman Island, Jamaica, Puerto Rico, St. Croix, and Virgin Islands (Kingsolver 1970b).

New Records: United States.

Discussion

A. schwarzi is placed in the Alternatus group. The J-shaped sclerite in the internal sac (figure 63) of *A. schwarzi* is very characteristic of this species and also species such as *A. caracasensis* Pic, *A. caryoboriformis* (Pic), and *A. longissimus* (Pic). In this group only *A. eustrophoides* and *A. schwarzi* have known hosts, both in the family Euphorbiaceae. *A. schwarzi,* however, has been reported also to feed in seeds of the family Verbenaceae and *Ricinus communis,* host records that must be verified, especially *Ricinus.*

Amblycerus scutellaris (Sharp)

Spermophagus scutellaris Sharp 1885:500 (Type: Guatemala, near the city; The Museum of Natural History, London).
Amblycerus scutellaris: Blackwelder 1946:763; Kingsolver 1970b:483; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:15.

Male

Integument Color. Body yellowish to dark red; elytra with characteristic basal, medial, subtriangular spot encompassing stria four of one elytron to stria four of other, extending to about four-tenths length of elytron, spot brown to black, sometimes connected with mesal, apical pronotal spot; some specimens with vertex of head, humeri of elytra, and venter darker than rest of body; pygidium with oval, dark spot; eyes black or silvery.

Vestiture. Body covered with yellowish to brown hairs with small spots of white hairs arranged in fine mottled pattern; subtriangular spot on elytron covered with brown to black hairs; oval spot on pygidium clothed with dark to black hairs; each abdominal sternum with spot of dense white hairs on lateral margins.

Head. Elongated, densely punctulate; frons smooth, without median linear carina. Eye ovoid, cleft to one-fourth its length by ocular sinus. First segment of antenna two and four-tenths times as long as 2nd; 3rd segment one and four-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching middle of hind coxa. Clypeus covered with punctures. Labrum with few punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum finely punctulate with few foveolae on basal corners; cervical sulcus indistinct, with three cervical setae. Prosternum flat and very constricted between coxae; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, densely clothed with whitish hairs, two and four-tenths times as long as wide, apex rounded. Elytron two and seven-tenths times as long as broad; striae regular, moderately impressed and slightly punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad, and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae and without transverse, fusiform, curved, and striate file; metepisternal sulcus forming obtuse angle, with transverse axis curved and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, finely foveolate, and setose in lateral two-thirds to eight-tenths and along posterior border, remaining two-tenths to four-tenths polished and impunctate except for a small cluster of punctures near trochanteral insertion, foveolae and cluster of punctures contiguous or nearly so; metafemur without angulate tooth on ventral margin; lateral tibial calcarium straight, one-half as long as basitarsus; mesal calcarium one-third as long as lateral calcarium.

Abdomen. Sterna finely punctulate, without foveolae; 5th sternum slightly emarginate at apex; pygidium with terminal margin slightly truncate, surface finely punctulate, without foveolae.

Size. Length (pronotum-elytra) 2.2-2.9 mm. Width 1.2-1.6 mm. Maximum thoracic depth 1.0-1.3 mm.

Genitalia (figures 66, 67, 68). Median lobe slightly sinuate on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve slightly narrower and concave at base, acuminate at apex, and arcuate in lateral view; armature of internal sac with small, basal, circular-shaped sclerite; two median brush-shaped sclerites with row of teeth on margin; median, moderately large, appendiculate sclerite with two small teeth on lateral margins; median wishbone-shaped sclerite (figures 66, 67). Lateral lobes wide, with a series of spine-shaped projections between them, cleft to fifteen-hundredths their length (figure 68).

Female

Similar to male except 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 2.3-2.9 mm. Width 1.3-1.7 mm. Maximum thoracic depth 1.0-1.4 mm.

Host Plants

Old Record: *Cordia* spp.*:* Kingsolver 1970b:483; Udayagiri and Wadhi 1989:15.

New Record: *Cordia alliodora:* ***Costa Rica.*** Heredia prov. III-IV- 1972, D. Sliwa collector.

Distribution

Old Records: Guatemala, Nicaragua, Panama (Johnson and Kingsolver 1981).

New Records: Costa Rica, El Salvador, French Guiana, Mexico, Trinidad.

Discussion

This species is similar to *A. biolleyi* from Costa Rica. *A. scutellaris,* however, has a subtriangular spot on the elytron and sclerites of a different shape in the internal sac (figures 66, 67). Both species feed in seeds of *Cordia.*

Amblycerus serieguttatus (Chevrolat)

Spermophagus serieguttatus Chevrolat 1877:125 (Type: Venezuela (vallée d'Aragua); Naturhistoriska Riksmuseet, Sweden).
Amblycerus serieguttatus: Blackwelder 1946:763; Udayagiri and Wadhi 1989:15.
Spermophagus luctuosus Sharp 1885:497 (Type: Guatemala, Zapote; Panama, Caldera in Chiriqui; The Museum of Natural History, London); Udayagiri and Wadhi 1989:11. **NEW SYNONYMY**
Amblycerus luctuosus: Blackwelder 1946:762; Johnson and Kingsolver 1981:410.

Male

Integument Color. Uniformly dark red with eyes piceous or black.

Vestiture. Body covered with white hairs, pronotum with six small spots of dense yellowish hairs; elytron with four dashed stripes formed from dense yellowish hairs on alternate strial intervals; scutellum clothed with yellowish hairs; pygidium with faint, longitudinal line of dense whitish hairs, with some scattered black hairs.

Head. Elongated, covered with fine punctures; frons usually smooth sometimes with very faint, short carina. Eye ovoid, cleft to fifteen-hundredths its length by ocular sinus. First segment of antenna two and one-tenth times as long as 2nd; 3rd segment one and four-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching middle of hind coxa. Clypeus with scattered large and small punctures; labrum with row of punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate, with deep foveolae covering surface; lateral carina not reaching cervical sulcus; cervical sulcus faint, with two cervical setae. Prosternum flat, constricted between coxae, rounded at apex; proepisternum punctulate, with fine foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, weakly compressed laterally, finely punctulate, two and six-tenths times as long as wide, weakly tridentate at apex. Elytron two and one-half times as long as broad; striae regular, moderately impressed and deeply punctulate; strial intervals finely punctured. Mesosternum tonguelike in basal area, finely punctulate, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum densely punctulate, with some foveolae on mesal region; median sulcus of metasternum one-half as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, with few fine foveolae over surface, without transverse, fusiform, curved, and striate file; metepisternal sulcus forming slightly obtuse angle, with transverse axis straight and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, foveolate, and setose in lateral one-half and along posterior border, remaining one-half polished and impunctate except for small cluster of punctures near trochanteral insertion, foveolae

and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, two-thirds as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate, with short line of foveolae laterally; 5th sternum slightly emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, with foveolae.

Size. Length (pronotum-elytra) 2.7-4.4 mm. Width 1.8-2.7 mm. Maximum thoracic depth 1.4-2.1 mm.

Genitalia (figures 69, 70). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve subcampanulate, concave at base; armature of internal sac with two basal, suborbicular, scaly sclerites; two median, hand-shaped sclerites; internal sac with apical one-half lined with spinules; cluster of small spines at base (figure 69). Lateral lobes with straight lateral margins, cleft to about two-tenths their length (figure 70).

Female

Similar to male except 5th abdominal sternum not emarginate at apex.

Size. Length (pronotum-elytra) 3.2-4.1 mm. Width 2.0-2.6 mm. Maximum thoracic depth 1.7-2.0 mm.

Host Plants

Unknown.

Distribution

Old Records: Guatemala, Panama, Venezuela (Chevrolat 1877; Johnson and Kingsolver 1981).

New Records: Costa Rica, Mexico.

Discussion

A. serieguttatus superficially resembles *A. multiflocculus* and *A. chiapas,* but differences in color of the pubescence and the sclerites in the internal sac place this species in the Alternatus group.

John Kingsolver has examined types of both *A. serieguttatus* and *A. luctuosus* and he considers both to be members of the same species.

Amblycerus sosia Ribeiro-Costa and Kingsolver

Amblycerus sosia Ribeiro-Costa and Kingsolver 1992:183 (Holotype: Brazil: Pará, Jacarecanga; Depository: Museu de Zoologia de São Paulo).

Male

Integument Color. Uniformly red with small black spots on elytron arranged in the following pattern: one mesal spot in basal one-third, four spots in line on medial two-thirds, and one mesal spot on apical one-third; pygidium with central, oval, obscure spot; eyes dark brown.

Vestiture. Body covered with yellowish and whitish hairs forming faint mottled pattern; scattered spots of dense whitish hairs on pronotum and elytron; abdominal sterna with faint spot of dense whitish hairs on lateral margins; dark spot on pygidium covered with brown hairs and flanked with whitish hairs.

Head. Elongated, densely punctulate; frons with prominent median linear carina scarcely reaching frontoclypeal suture. Eye ovoid, cleft to two-tenths its length by ocular sinus; medial margin of eye with a row of long, golden hairs. First segment of antenna two and four-tenths times as long as 2nd; 3rd segment one and four-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching anterior margin of hind coxa. Clypeus covered with small and large punctures. Labrum with row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum finely punctulate, foveolate only in lateral region; pronotum with lateral carina reaching cervical sulcus; cervical sulcus faint, extending dorsad almost to midline, with three cervical setae. Prosternum flat, punctulate, constricted between coxae, carinate laterally; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, bisulcate and tridentate apically. Elytron two and eight-tenths times as long as broad; striae regular, moderately impressed and deeply punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, with minute foveolae. Metasternum punctulate, without foveolae. Median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad, and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate with very few foveolae over surface, without transverse, fusiform, curved, and striate file; metepisternal sulcus forming right angle, with transverse axis curved and not reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, finely foveolate, densely setose in lateral two-thirds and along posterior border, remaining one-third polished and impunctate except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium curved, three-fourths as long as basitarsus; mesal calcarium four-tenths as long as lateral calcarium.

Abdomen. Sterna finely punctulate, without foveolae; 5th sternum truncate at apex; pygidium with terminal margin truncated; surface finely punctulate, with scattered foveolae.

Size. Length (pronotum-elytra) 7.3 mm. Width 4.2 mm. Maximum thoracic depth 3.1 mm.

Genitalia (figures 71, 72). Median lobe constricted on lateral margins; ventral valve acuminate at apex, slightly arcuate in lateral view; dorsal valve narrower and concave at base; armature of internal sac with two basal spine-shaped sclerites; two median, elongate sclerites, each with three teeth on apical one-third, and one or two more on basal portion; median sclerite with dorsal surface strongly serrate; with U-shaped apical sclerite; internal sac with posterior one-third lined with spinules (figure 71). Lateral lobes cleft to about one-fourth their length (figure 72).

Female

None available.

Host Plants

Unknown.

Distribution

Old Records: Brazil, French Guiana, Colombia, United States (Florida).

Discussion

A. sosia is placed in the Cistelinus group with *A. cistelinus* and *A. guazumicola.* It is more closely related to *A. cistelinus* than to *A. guazumicola* (compare figures 21, 31, 71). Details of the male genitalia are the only reliable characters with which to separate them. The wishbone-shaped sclerite of *A. sosia* is strongly dentate on its dorsal margins, the two basal sclerites are thornlike, and the three denticles on the elongate sclerites are contiguous. In *A. cistelinus* the wishbone-shaped sclerite has few teeth and these only at its apex, the two basal sclerites are Y-shaped instead of being spine-shaped, and the teeth on the elongate sclerites are proximate. *A. sosia* is also closely related to *A. whiteheadi,* a species reported only from Central America but differs in that in *A. whiteheadi* the dorsal valve is subovate, the wishbone-shaped sclerite has smaller teeth, and the elongate sclerites are without teeth. *A. jatayensis* (Pic) from Brazil also belongs in this species group.

Amblycerus spondiae Kingsolver

Amblycerus spondiae Kingsolver 1980:239 (Holotype: Costa Rica, Taboga Guanacaste Prov.; USNMNH); Janzen 1980:933,935,947; Janzen 1981:272; Pfaffenberger 1985:2; Johnson and Kingsolver 1981:410; Udayagiri and Wadhi 1989:15.

Male

Integument Color. Dark red except tarsi and antenna reddish brown; eyes shiny black.

Vestiture. Body covered with fine golden hairs; pronotum with narrow median stripe of dense hairs and indistinct condensed patches or lines of hairs, elytral intervals sometimes with faint stripes of dense hairs; pygidium with faint, narrow, median stripe of dense hairs.

Head. Elongated and densely punctulate; frons with intermixed large and small punctures, without median linear carina. Eye ovoid, cleft to one-fourth its length by ocular sinus. First segment of antenna two times as long as 2nd; 3rd segment one and one-half times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching middle of hind coxa. Clypeus covered with small and large punctures, except for narrow glabrous band on apical margin. Labrum with row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum finely punctulate, with deep foveolae; lateral carina not reaching cervical sulcus; cervical sulcus fine, extending dorsad almost to midline, with three cervical setae. Prosternum flat, constricted between coxae, curved apically, apex rounded and densely setose; proepisternum finely punctulate, with foveolae on apical one-half.

Mesothorax and Metathorax. Scutellum elongate, finely punctulate, slightly constricted laterally, sparely setose, two times as long as wide, tridentate and bisulcate at apex. Elytron two and eight-tenths times as long as broad; striae regular, well impressed and deeply punctulate; strial intervals finely striate. Mesosternum finely punctulate, tonguelike in basal area, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad, and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, with deep foveolae on posterior one-half, without transverse, fusiform, curved, and striate file; metepisternal sulcus forming obtuse angle, with transverse axis straight and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, foveolate and setose in lateral one-half and along posterior border, remaining one-half polished and impunctate except for small cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, one-half as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate, with short line of foveolae laterally; 5th sternum emarginate at apex; pygidium with terminal margin truncate, surface finely punctulate, foveolate, each foveola with a black hair.

Size. Length (pronotum-elytra) 4.2-7.3 mm. Width 2.1-3.9 mm. Maximum thoracic depth 2.0-3.1 mm.

Genitalia (figures 73, 74). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and strongly concave at base; armature of internal sac with two basal, thorn-shaped sclerites; two median, complex, elongate sclerites with serrate ridges; elongate median wishbone-shaped sclerite; internal sac with apical one-half lined with spinules and basal cluster of small setae (figure 73). Lateral lobes cleft to fifteen-hundredths their length (figure 74).

Female

Similar to male except 5th abdominal sternum truncate at apex.

Size. Length (pronotum-elytra) 5.1-6.9 mm. Width 2.9-3.5 mm. Maximum thoracic depth 2.2-2.9 mm.

Host Plants

Old Records: *Cordia dodecandra* DC.: Kingsolver 1980:241; Udayagiri and Wadhi 1989:15. *Hippomane mancinella* L.: Kingsolver 1980:241; Janzen 1980:947; Udayagiri and Wadhi 1989:15. *Spondias mombin* L.: Kingsolver 1980:240; Janzen 1976:180 (as *Amblycerus,* nomen nudum); Janzen 1980:947; Udayagiri and Wadhi 1989:15. *S. radlkoferi* Donn. and Smith: Kingsolver 1980:240; Janzen 1980:947; Udayagiri and Wadhi 1989:15. *Ziziphus mexicanus* Rose: Kingsolver 1980:241; Udayagiri and Wadhi 1989:15.

New Record: None.

Distribution

Costa Rica, El Salvador, Guatemala, Mexico, Panama (Kingsolver 1980).

Discussion

See *A. cuernavacensis* for a discussion of this species.

Amblycerus stridulator Kingsolver, Romero N., and Johnson

Amblycerus stridulator Kingsolver, Romero N., and Johnson 1993:128; (Holotype: Mexico. Jalisco: Estación de Biología, Chamela; Universidad Nacional Autonoma de Mexico, Mexico, D.F.)

Male

Integument Color. Body reddish with the following exceptions: vertex with small, medial darker spot or line; pronotum with mesal, longitudinal, narrow, darker stripe; scutellum brown to black; sometimes with tibia and metacoxa darker; profemur and mesofemur yellowish; pygidium sometimes with small to regular darker spot; eyes brownish to black.

Vestiture. Head and pronotum covered with yellowish hairs; elytron with very faint intercalate stripes of whitish and golden hairs, with some scattered spots of black hairs; venter of thorax and legs clothed with whitish hairs; abdomen covered with mixed whitish and golden hairs, each abdominal sternum bearing spot of dense whitish hairs on lateral margins; pygidium clothed with golden hairs, with median, narrow stripe of dense golden hairs.

Head. Subtriangular, densely punctulate, fine and small intermixed punctures; frons with prominent median linear carina extending from frontoclypeal suture to vertex. Eye ovoid, cleft to one-fourth its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two and eight-tenths times as long as 2nd; 3rd segment one and seven-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna not reaching anterior margin of hind coxa. Clypeus covered with deep punctures. Labrum with few fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate, with deep foveolae scattered over surface, except for a smooth, longitudinal, medial line; lateral carina reaching cervical sulcus; cervical sulcus prominent, extending dorsad almost to midline, with three cervical setae. Prosternum flat, constricted between coxae, finely punctulate, slightly curved apically, slightly carinate laterally; proepisternum finely punctulate, with foveolae on apical one-half.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, scarcely setose, two times as long as wide, tridentate and bisulcate apically. Elytron two and six-tenths times as long as broad; striae regular, moderately impressed, deeply punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate without foveolae. Metasternum punctulate, with few deep foveolae; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, with fine foveolae over surface, with transverse, fusiform, curved, and striate file; metepisternal sulcus forming right angle, with transverse axis arcuate and reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; surface of hind coxa densely punctulate, finely foveolate and setose

in lateral two-thirds and along posterior border, mesal one-third polished and impunctate except for small cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; metafemur with angulate tooth on ventral margin; lateral tibial calcarium curved, three-fourths as long as basitarsus; mesal calcarium four-tenths as long as lateral calcarium.

Abdomen. Sterna finely punctulate, with foveolae scattered on lateral surfaces; sterna with a few long setae mesally; 5th sternum emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, foveolate, each foveola with a black hair.

Size. Length (pronotum-elytra) 5.6-7.7 mm. Width 3.4-4.5 mm. Maximum thoracic depth 2.3-3.1 mm.

Genitalia (figures 75, 76). Median lobe slightly constricted and sinuate on lateral margins; ventral valve acuminate at apex, slightly arcuate in lateral view; dorsal valve wider and strongly concave at base; armature of internal sac with two basal blades with outer margins finely serrated, two median finger-shaped sclerites, and two long spine-shaped sclerites (figure 75). Lateral lobes with two finely pubescent protuberances; lateral lobes cleft to one-fourth their length (figure 76).

Female

Similar to male except 5th abdominal sternum slightly emarginate or truncate at apex.

Size. Length (pronotum-elytra) 5.3-7.4 mm. Width 3.2-4.3 mm. Maximum thoracic depth 2.3-3.1 mm.

Host Plants

Old Records: *Caesalpinia sclerocarpa* Standley: Kingsolver et al. 1993:130.

New Record: None.

Distribution

Mexico (Kingsolver et al. 1993).

Discussion

This species shares with *A. eustrophoides* the presence of a file on the metepisternum and a tooth on the metafemur. *A. stridulator* is placed by itself in the Stridulator group because of the peculiarity of sclerites in the internal sac and the form of the "stridulatory" organs (Kingsolver et al. 1993).

Amblycerus teutoniensis Ribeiro-Costa and Kingsolver

Amblycerus teutoniensis Ribeiro-Costa and Kingsolver 1993:161 (Holotype: Brazil, Sta. Catarina, Nova Teutonia; USNMNH, Washington, DC.).

Male

Integument Color. Body black except abdomen, 1st to 3rd or 4th segments of antenna, mandibles, tarsi, calcaria, and pygidium brown to yellowish; eyes brown to black.

Vestiture. Black integument covered with brown and white hairs arranged in fine mottled pattern; scutellum clothed with golden hairs; abdomen and pygidium covered with white, golden, and brown hairs forming mottled pattern.

Head. Subtriangular with small and large punctures; frons with faint median linear carina. Eye reniform, cleft to four-tenths its length by ocular sinus. First segment of antenna two and one-tenth times as long as 2nd; 3rd segment one and four-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna not reaching anterior margin of hind coxa. Frontoclypeal suture indistinct or absent; clypeus covered with punctures except in narrow band on apical portion. Labrum without punctures.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina. Dorsal surface of pronotum punctulate with foveolae only on lateral margins; lateral carina faint and not reaching cervical sulcus; cervical sulcus very fine with two cervical setae. Prosternum flat, constricted between coxae, rounded apically, clothed with white hairs; proepisternum finely punctulate, without foveolae.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, densely setose, one and four-tenths times as long as wide, weakly tridentate at apex. Elytron two and two-tenths times as long as broad; striae regular, well impressed, punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tonguelike in basal area with mesal sulcus for reception of prosternal process. Mesepisternum finely punctulate, without foveolae; mesepimeron finely punctulate, with some scattered foveolae. Metasternum densely punctulate, with fine foveolae scattered over surface; median sulcus of metasternum four-tenths as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate with fine foveolae, without transverse, fusiform, curved, and striate file; metepisternal sulcus forming almost right angle with transverse axis straight and without reaching lateral margin of metepisternum. Middle and hind legs with femur densely punctulate, without foveolae; surface of hind coxa densely punctulate, foveolate, and setose in lateral two-thirds and along posterior border, mesal one-third polished and impunctate except for large cluster of punctures near trochanteral insertion, foveolae and cluster of punctures contiguous; metafemur without angulate tooth on ventral margin; lateral tibial calcarium slightly curved, two-thirds as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate, without foveolae; 5th sternum emarginate at apex; pygidium with terminal margin rounded; surface finely punctulate, without foveolae.

Size. Length (pronotum-elytra) 4.8-5.1 mm. Width 3.8 mm. Maximum thoracic depth 2.6-2.7 mm.

Genitalia (figures 77, 78, 79). Median lobe slightly constricted on lateral margins; ventral valve acuminate at apex, slightly arcuate in lateral view; dorsal valve subcampanulate, concave at base; armature of internal sac with basal, subconical sclerite; two spiny F-shaped sclerites; two median blades, serrate on lateral margins, they are intercalate with two small plates with dentate margins; median wishbone-shaped sclerite, and two apical pear-shaped sclerites (figures 77, 78). Lateral lobes cleft to about two-tenths their length (figure 79).

Female

None available.

Host Plants

Old Record: None.

New Record: *Cordia henriquensi: **Mexico.*** Tehuantepec Oaxaca, IV- 13-1951, Lewis collector.

Distribution

Paraguay, Brazil, Mexico.

Discussion

This species belongs to the Championi group. It differs from other members of the group because of the black coloration of its integument and spiny F-shaped sclerites, small plates with dentate margins, and apical pear-shaped sclerites in the internal sac of the male genitalia. It is related to *A. evangelinae.* Other species from Brazil are similar to it.

Amblycerus veracruz Romero, Johnson, and Kingsolver, new species

Male

Integument Color. Dark red, sometimes with metasternum, metepisternum, metacoxa, metafemur, and clypeus darker; frons and pronotum with linear, mesal, darker lines; eyes shiny black.

Vestiture. Body with yellowish, brown, and black hairs forming patchy pattern; each sternum with small spot of whitish hairs laterally; pygidium with large central spot of black hairs surrounded by whitish hairs.

Head. Elongated, frons and clypeus covered densely with fine punctures, except for smooth fringe on basal margin of clypeus; frons without median linear carina. Eye ovoid, cleft to three-tenths its length by ocular sinus. First segment of antenna one and four-tenths times as long as 2nd; 3rd segment subequal to 2nd; remaining segments more or less with proportions of 1st; antenna scarcely reaching anterior margin of hind coxa.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; pronotum with prominent lateral carina, apically bifurcate for three-tenths its length; cervical sulcus indistinct, cervical setae absent. Dorsal surface of pronotum punctulate with fine foveolae concentrated only on lateral areas. Prosternum flat, constricted between coxae; proepisternum finely punctate, without foveolae.

Mesothorax and Metathorax. Scutellum elongate, finely punctulate, sulcate apically with two small teeth. Elytron about two and four-tenths times as long as broad; striae regular, well impressed, without punctures; strial intervals finely punctulate. Mesosternum finely punctulate, setose, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum punctulate, without foveolae over surface; median sulcus of metasternum one-half as long as metasternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad, and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate, without foveolae over surface; metepisternal sulcus forming right angle, with transverse axis straight and reaching lateral margin of metepisternum. Surface of hind coxa densely punctate, finely foveolate, and setose in lateral three-fourths and along posterior border, remaining one-fourth polished and impunctate, except for cluster of punctures near trochanteral insertion, foveolae and cluster of punctures proximate; middle and hind leg with femur punctulate, without foveolae; ventral face of metafemur with two longitudinal rows of small spines; lateral tibial calcarium straight, one-half as long as basitarsus; mesal calcarium one-half as long as lateral calcarium.

Abdomen. Sterna finely punctulate; pygidium with terminal margin rounded, with fine punctures, without foveolae.

Size. Length (pronotum-elytra) 3.8 mm. Width 2.5 mm. Maximum thoracic depth 1.9 mm.

Genitalia (figures 80, 81). Median lobe slightly sinuate on lateral margins and wider on basal portion; ventral valve acuminate at apex and slightly arcuate in lateral view;

dorsal valve narrower, concave at base, and slightly arcuate in lateral view; armature of internal sac with large basal sclerites with two long arms apically; two median, spiny, finger-shaped sclerites; two apical blades serrate on lateral margins; apical wishbone-shaped sclerite; and two subtriangular plates (figure 80). Lateral lobes cleft to fifteen-hundredths their length (figure 81).

Female

None available.

Host Plants

Unknown.

Type Series

Male holotype: ***Mexico.*** San Andres V.C., II-6-12-1953, D. Kissinger collector.

Holotype deposited in the USNMNH.

Distribution

Mexico.

Discussion

A. veracruz is distinctive by its characteristic pattern of pubescence, the large basal sclerite with two long apical arms, and the pair of spiny, finger-shaped median sclerites in the internal sac. This species is in the Scutellaris group. In the group, *A. veracruz* is much more closely related to *A. pygidialis* in similarities of the basal and medial sclerites.

Etymology

This species is named because it is from the Mexican state of Veracruz. The specific epithet is a noun in apposition to *Amblycerus.*

Amblycerus vitis (Schaeffer)

Spermophagus vitis Schaeffer 1907:293 (Lectotype: United States, Arizona; USNMNH); Cushman 1911:505; Leng 1920:306; Johnson 1968:1268.
Amblycerus vitis: Johnson 1968:1269; Bottimer 1968:1012,1038; Johnson and Kingsolver 1975:322; Center and Johnson 1976:196; Johnson 1977:165; Johnson 1978:433,436; Pfaffenberger 1979:239; Johnson 1980:28; De Luca 1980:41; Johnson and Kingsolver 1981:411; Pfaffenberger 1985:2; Johnson and Kistler 1987:263; Udayagiri and Wadhi 1989:17.

Male

Integument Color. Usually reddish or reddish brown, sometimes yellowish; black eyes.

Vestiture. Body covered with golden hairs.

Head. Elongated, densely punctulate, with some large scattered punctures; frons usually smooth, sometimes with short impunctate line. Eye ovoid, cleft to one-fourth its length by ocular sinus; medial margin of eye with row of long, golden hairs. First segment of antenna two times as long as 2nd; 3rd segment one and seven-tenths times as long as 2nd; remaining segments more or less with proportions of 3rd; antenna reaching middle of hind coxa. Clypeus covered with small and large punctures. Labrum with row of fine punctures on basal margin.

Prothorax. Disk subcampanulate, median basal lobe weakly convex, basal margin with carina; lateral sulcus reaching cervical sulcus. Dorsal surface of pronotum finely punctulate with deep foveolae covering surface; cervical sulcus fine, extending dorsad almost to midline, with two cervical setae. Prosternum flat, constricted between coxae, carinate laterally, slightly curved apically and rounded at apex; proepisternum finely punctulate, with foveolae only on apical one-half.

Mesothorax and Metathorax. Scutellum slightly elongate, finely punctulate, scarcely setose, one and nine-tenths times as long as wide, bidentate at apex. Elytron two times as long as broad; striae regular, well impressed, deeply punctulate; strial intervals finely punctured. Mesosternum finely punctulate, tongue-like in basal area, with mesal sulcus for reception of prosternal process. Mesepisternum and mesepimeron finely punctulate, without foveolae. Metasternum densely punctulate, without foveolae; median sulcus of metasternum one-half as long as sternum; antecoxal suture of metasternum interrupted before reaching median sulcus, bending caudad, and reaching posterior margin near mesal area of metasternum. Metepisternum punctulate with few fine foveolae over surface, without transverse, fusiform, curved, and striate file; metepisternal sulcus forming obtuse angle, with transverse axis straight and without reaching lateral margin of metepisternum. Middle and hind legs with femur punctulate, without foveolae; metafemur without angulate tooth on ventral margin; surface of hind coxa densely punctulate, finely foveolate, and setose in lateral two-thirds and along posterior border, mesal one-third polished and impunctate except for a cluster of punctures near trochanteral insertion, foveolae and cluster of punctures contiguous or nearly so; lateral tibial calcarium straight, one-half as long as basitarsus; mesal calcarium two-thirds as long as lateral calcarium.

Abdomen. Sterna finely punctulate, with line of foveolae on lateral margins; sterna with a few, long mesal setae; 5th sternum strongly emarginate at apex; pygidium with terminal margin rounded, surface finely punctulate, foveolate.

Size. Length (pronotum-elytra) 2.6-4.0 mm. Width 1.6-2.4 mm. Maximum thoracic depth 1.3-2.0 mm.

Genitalia (figures 82, 83). Median lobe constricted on lateral margins; ventral valve acuminate at apex, arcuate in lateral view; dorsal valve narrower and strongly concave at base; armature of internal sac with two basal, triangular, thin sclerites; median wishbone-shaped sclerite; two median, complex, elongate sclerites with dentate ridges; with cluster of small, basal spines and cluster of spinules basally (figure 82). Lateral lobes cleft to one-tenth their length (figure 83).

Female

Similar to male except 5th abdominal sternum not strongly emarginate at apex.

Size. Length (pronotum-elytra) 2.5-3.4 mm. Width 1.5-2.2 mm. Maximum thoracic depth 1.2-1.8 mm.

Host Plants

Old Record: *Vitis arizonica* Engelm.: Johnson and Kingsolver 1975:323; Center and Johnson 1976:200; Johnson 1977:165; Johnson 1978:433; Hetz and Johnson 1988:135; Udayagiri and Wadhi 1989:17.

New Record: None.

Distribution

Old Record: United States (Arizona) (Johnson and Kingsolver 1975).

New Record: United States (Texas).

Discussion

This species is discussed under *A. cuernavacensis.*

Conclusions

1. In the United States and Mexico there are 40 species of *Amblycerus*. Of these, 9 new species are described here. *Amblycerus serieguttatus* was found to be a new senior synonym of *A. luctuosus*.

2. Species of *Amblycerus* form 15 species groups.

3. Species of *Amblycerus* feed in 54 species of host plants belonging to 13 different families.

4. According to our data, the following species are monophagous: *Amblycerus acapulcensis, A. atkinsoni, A. baracoensis, A. biolleyi, A. cerdanicola, A. cistelinus, A. eustrophoides, A. guazumicola, A. mariae, A. pterocarpae, A. sallei, A. stridulator, A. teutoniensis,* and *A. vitis. A. epsilon, A. obscurus, A. nigromarginatus,* and *A. spondiae* are polyphagous, some feeding in up to nine different taxa of host plants. The rest of the species are oligophagous.

5. *A. vitis, A. sosia,* and *A. ireriae* were recorded only from the United States. *A. acapulcensis, A. atkinsoni, A. barcenae, A. cuernavacensis, A. evangelinae, A. guazumicola,* and *A. stridulator* were recorded only from Mexico. The other species have wider distributions.

Appendix 1. Species Groups of *Amblycerus*

The groups are arranged in a sequence that we consider to represent their evolutionary relationships.

Pterocarpae group
pterocarpae

Piurae group
piurae

Epsilon group
epsilon
sallei

Multiflocculus group
multiflocculus

Spondiae group
cuernavacensis
spondiae
vitis

Alternatus group
alternatus
eustrophoides
schwarzi
serieguttatus

Robiniae group
acapulcensis
ireriae
robiniae

Perfectus group
perfectus

Obscurus group
nigromarginatus
obscurus

Stridulator group
stridulator

Anosignatus group
anosignatus
chiapas
guerrerensis

Cistelinus group
cistelinus
guazumicola
sosia

Marmoratus group
barcenae
hespenheidei
marmoratus
pictus

Championi group
championi
evangelinae
teutoniensis

Scutellaris group
atkinsoni
baracoensis
biolleyi
cerdanicola
mariae
pygidialis
scutellaris
veracruz

Appendix 2. Host Plants and Associated *Amblycerus*

?= Host plants that should be verified

Host plant	*Amblycerus* species
Leguminosae	
Acacia adansonii ?	*robiniae*
Caesalpinia spp.	*nigromarginatus*
Caesalpinia cacalaco	*acapulcensis*
C. sclerocarpa	*stridulator*
Cassia spp.	*nigromarginatus*
Cassia alata	*nigromarginatus*
	obscurus
C. atomaria	*epsilon*
C. bicapsularis	*nigromarginatus*
	obscurus
C. emarginata	*epsilon*
C. hintoni	*epsilon*
C. indecora	*obscurus*
C. leptocarpa	*obscurus*
C. mollissima glabrata	*epsilon*
C. nutans nutans	*epsilon*
C. obtusifolia	*obscurus*
C. occidentalis	*nigromarginatus*
	obscurus
C. oxyphylla	*epsilon*
C. pendula advena	*obscurus*
C. pendula ovalifolia	*obscurus*
C. reticulata	*epsilon*
C. sericea	*nigromarginatus*
C. splendida	*nigromarginatus*
C. uniflora	*obscurus*
Ceratonia siliqua ?	*piurae*
Desmodium cinereum ?	*perfectus*
Gleditsia aquatica	*robiniae*
G. triacanthos	*robiniae*
Prosopis spp.	*piurae*
Prosopis juliflora	*epsilon*
	piurae
	sallei

Host plant	*Amblycerus* species
Pterocarpus rohrii	*pterocarpae*
Robinia pseudoacacia ?	*robiniae*
Anacardiaceae	
Spondias mombin	*spondiae*
S. radlkoferi	*spondiae*
Boraginaceae	
Cordia spp.	*scutellaris*
Cordia alba	*mariae*
C. alliodora	*atkinsoni*
	cerdanicola
	scutellaris
	biolleyi
C. dentata	*championi*
C. dodecandra	*spondiae*
C. gerascanthus	*baracoensis*
	pygidialis
C. henriquensi	*teutoniensis*
C. panamensis	*championi*
C. toqueve	*championi*
Combretaceae	
Combretum farinosum	*perfectus*
Euphorbiaceae	
Drypetes laterifolia	*eustrophoides*
Hippomane mancinella	*spondiae*
	schwarzi
Ricinus communis ?	*schwarzi*
Malpighiaceae	
Banisteriopsis cornifolia	*multiflocculus*
Heteropterys beechyana	*multiflocculus*

Host plant	*Amblycerus* species
Malvaceae	
Gossypium spp.?	*piurae*
Poaceae	
Pennisetum spp.?	*championi*
Rhamnaceae	
Barcena guanajuatensis	*barcenae*
Colubrina triflora	*barcenae*
Ziziphus mexicanus	*spondiae*
Sterculiaceae	
Guazuma ulmifolia	*guazumicola*
	cistelinus
Tiliaceae	
Apeiba tibourbou ?	*cistelinus*
Luehea speciosa ?	*pygidialis*
Verbenaceae	
Tectona grandis ?	*schwarzi*
Vitaceae	
Vitis arizonica	*vitis*

Appendix 3. *Amblycerus* Species and Their Host Plants

Amblycerus species	Host plants
acapulcensis	*Caesalpinia cacalaco* Humb. & Bonpl.
alternatus	Unknown
anosignatus	Unknown
atkinsoni	*Cordia alliodora* (Ruiz & Pavan)
baracoensis	*Cordia gerascanthus* L.
barcenae	*Barcena guanajuatensis* Dugès *Colubrina triflora* Brongn.
biolleyi	*Cordia alliodora* (Ruiz & Pavan)
cerdanicola	*Cordia alliodora* (Ruiz & Pavan)
championi	*Cordia dentata* Poir. *C. panamensis* Riley *C. toqueve* Sieber *Pennisetum* spp.
chiapas	Unknown
cistelinus	*Apeiba tibourbou* Aubl. *Guazuma ulmifolia* Lam.
cuernavacensis	Unknown
epsilon	*Cassia atomaria* (L.) *C. emarginata* L. *C. hintoni* Sandwith *C. mollissima glabrata* (Bentham) *C. nutans nutans* (Bentham) *C. oxyphylla* (Kunth) *C. reticulata* Willdenow *Prosopis juliflora* (Sw.) DC.
eustrophoides	*Drypetes laterifolia* (Sw.)
evangelinae	Unknown
guazumicola	*Guazuma ulmifolia* Lam.
guerrerensis	Unknown

***Amblycerus* species**	**Host plants**
hespenheidei	Unknown
ireriae	Unknown
mariae	*Cordia alba* Roem. & Schult.
marmoratus	Unknown
multiflocculus	*Banisteriopsis cornifolia* H.B.K. *Heteropterys beechyana* A. Juss.
nigromarginatus	*Caesalpinia* spp. *Cassia* spp. *Cassia alata* (L.) *C. bicapsularis* (L.) *C. occidentalis* L. *C. splendida* (Vogel) *C. uniflora* (P. Miller) *(= C. sericea)*
obscurus	*Cassia alata* L. *C. bicapsularis* L. *C. leptocarpa* Bentham *C. obtusifolia* L. *C. occidentalis* (L.) *C. pendula advena* (Vogel) *(= C. indecora)* *C. pendula ovalifolia* (Willdenow) *C. uniflora* Mill.
perfectus	*Combretum farinosum* H.B.K. *Desmodium cinereum* (H.B.K.) DC.
pictus	Unknown
piurae	*Ceratonia siliqua* L. *Gossypium* spp. *Prosopis* spp. *Prosopis juliflora* (Sw.) DC.
pterocarpae	*Pterocarpus rohrii* Vahl.
pygidialis	*Cordia gerascanthus* L. *Luehea speciosa* Willdenow

***Amblycerus* species**	**Host plants**
robiniae	*Acacia adansonii* Guill. *Gleditsia aquatica* Marsh *Gleditsia triacanthos* L. *Robinia pseudoacacia* L.
sallei	*Prosopis juliflora* (Sw.) DC.
schwarzi	*Hippomane mancinella* L. *Ricinus communis* L. *Tectona grandis* L.
scutellaris	*Cordia spp.* *Cordia alliodora* (Ruiz & Pavan)
serieguttatus	Unknown
sosia	Unknown
spondiae	*Cordia dodecandra* DC. *Hippomane mancinella* L. *Spondias mombin* L. *S. radlkoferi* Donn. & Smith *Ziziphus mexicanus* Rose
stridulator	*Caesalpinia sclerocarpa* Standley
teutoniensis	*Cordia henriquensi*
veracruz	Unknown
vitis	*Vitis arizonica* Engelm.

Appendix 4. Synonymical List of *Amblycerus* Species of the United States and Mexico

1. *Amblycerus acapulcensis* Kingsolver 1975:33
2. *Amblycerus alternatus* (Pic 1954b:13-16)
3. *Amblycerus anosignatus* (Chevrolat 1877:125)
4. *Amblycerus atkinsoni,* **n. sp.**
5. *Amblycerus baracoensis* Kingsolver 1970b:484
6. *Amblycerus barcenae* (Dugès 1880:37)
7. *Amblycerus biolleyi* (Pic 1954a:12)
8. *Amblycerus cerdanicola* Kingsolver 1970b:483
9. *Amblycerus championi* (Pic 1913:60)
   Spermophagus irroratus Sharp 1885:502
10. *Amblycerus chiapas,* **n. sp.**
11. *Amblycerus cistelinus* (Gyllenhal 1833:103)
    Spermophagus centralis Sharp 1885:500
12. *Amblycerus cuernavacensis,* **n. sp.**
13. *Amblycerus epsilon* Kingsolver 1980:232
14. *Amblycerus eustrophoides* (Schaeffer 1904:228)
15. *Amblycerus evangelinae,* **n. sp.**
16. *Amblycerus guazumicola* Kingsolver and Johnson, *In* Johnson and Kingsolver 1971:145
17. *Amblycerus guerrerensis,* **n. sp.**
18. *Amblycerus hespenheidei,* **n. sp.**
19. *Amblycerus ireriae,* **n. sp.**
20. *Amblycerus mariae,* **n. sp.**
21. *Amblycerus marmoratus* (Sharp 1885:501)
22. *Amblycerus multiflocculus* Kingsolver 1980:235
23. *Amblycerus nigromarginatus* (Motschulsky 1874:249)
24. *Amblycerus obscurus* (Sharp 1885:495)
25. *Amblycerus perfectus* (Sharp 1885:498)
26. *Amblycerus pictus* (Sharp 1885:502)
27. *Amblycerus piurae* (Pierce 1915:8)
28. *Amblycerus pterocarpae* Kingsolver 1980:237
29. *Amblycerus pygidialis* (Suffrian 1870:169)
    Amblycerus chapini Kingsolver 1970b:481
30. *Amblycerus robiniae* (Fabricius 1781:75)
    Chrysomela gleditsiae Castiglioni 1790:253
31. *Amblycerus sallei* (Jekel 1855:30)
    Amblycerus martorelli Bridwell 1944:133

32. *Amblycerus schwarzi* Kingsolver 1970b:477
33. *Amblycerus scutellaris* (Sharp 1885:500)
34. *Amblycerus serieguttatus* (Chevrolat 1877:125)
    Spermophagus luctuosus Sharp 1885:497, **NEW SYNONYMY**
35. *Amblycerus sosia* Ribeiro-Costa and Kingsolver 1992:183
36. *Amblycerus spondiae* Kingsolver 1980:239
37. *Amblycerus stridulator* Kingsolver, Romero N., and Johnson 1993:128
38. *Amblycerus teutoniensis* Ribeiro-Costa and Kingsolver 1993:161.
39. *Amblycerus veracruz,* **n. sp.**
40. *Amblycerus vitis* (Schaeffer 1907:293)

Appendix 5. Distribution of *Amblycerus* Species

Species of *Amblycerus*	Country *(States in parentheses)*
acapulcensis	Mexico *(Campeche, Colima, Guerrero, Sinaloa, Veracruz)*
alternatus	Brazil, Honduras, Panama, Mexico *(Campeche, Colima, Chiapas, Jalisco, Morelos, Tabasco, Sonora)*
anosignatus	Belize, Brazil, Guatemala, Panama, Mexico *(Chiapas)*
atkinsoni	Mexico *(Jalisco)*
baracoensis	Costa Rica, Cuba, Paraguay, Mexico *(Campeche, Yucatan)*
barcenae	Mexico *(Chiapas, Jalisco, Oaxaca, Tamaulipas, Morelos)*
biolleyi	Columbia, Costa Rica, Mexico
cerdanicola	Costa Rica, Puerto Rico, Mexico *(San Luis Potosi, Veracruz)*
championi	Costa Rica, Guatemala, Panama, Mexico *(Chiapas)*
chiapas	Panama, Mexico *(Chiapas, Veracruz)*
cistelinus	Brazil, Costa Rica, Cuba, Guatemala, Honduras, Panama, Venezuela, Mexico *(Tamaulipas, Veracruz, Morelos, Campeche, Quintana Roo, Chiapas, San Luis Potosi, Jalisco, Oaxaca)*
cuernavacensis	Mexico *(Morelos)*
epsilon	Costa Rica, Guatemala, Mexico *(Colima, Oaxaca, Michoacan, Jalisco, Yucatan, Quintana Roo, Campeche, Guerrero)*
eustrophoides	Costa Rica, Cuba, Mexico *(Chiapas, Quintana Roo, Tamaulipas),* United States *(Florida)*
evangelinae	Mexico *(Guerrero, Chiapas)*
guazumicola	Mexico *(Jalisco, Nayarit, Morelos, Michoacan, Sonora)*
guerrerensis	Panama, Mexico *(Chiapas, Guerrero)*

Species of *Amblycerus*	**Country *(States in parentheses)***
hespenheidei	Mexico *(Veracruz)*
ireriae	United States *(Texas)*
mariae	Costa Rica, El Salvador, Honduras, Mexico, Nicaragua, Tobago, Venezuela
marmoratus	Costa, Panama, Mexico *(Veracruz, Tabasco)*
multiflocculus	Costa Rica, El Salavador, Panama, Mexico
nigromarginatus	Brazil, Columbia, Surinam, United States *(Florida)*
obscurus	Columbia, Costa Rica, Guatemala, Honduras, Panama, Mexico *(Guerrero, Oaxaca, Sinaloa, Veracruz, Michoacan)*
perfectus	Costa Rica, Honduras, Mexico *(Oaxaca, Jalisco, Chiapas, Colima)*
pictus	Panama, Mexico *(Nayarit)*
piurae	Ecuador, Peru, Venezuela, Mexico
pterocarpae	Costa Rica, Mexico *(Chiapas)*
pygidialis	Cuba, Jamaica, Mexico *(Chiapas, Puebla, Veracruz)*
robiniae	Mexico *(Veracruz)*, United States *(New York, Texas, Washington, Kansas, Nebraska, Georgia, Virginia, Utah, Michigan, North Carolina, Ohio, Illinois, Pennsylvania, Arkansas, Louisiana, California, New Mexico, Oklahoma)*
sallei	Columbia, Dominican Republic, Haiti, Jamaica, Puerto Rico, Venezuela, Mexico
schwarzi	Cuba, Curaçao, Grand Cayman Island, Jamaica, Puerto Rico, St. Croix, U.S. Virgin Islands, United States (*Florida*)
scutellaris	Costa Rica, El Salvador, Guatemala, French Guiana, Nicaragua, Panama, Trinidad, Mexico *(Chiapas, Veracruz)*

Species of *Amblycerus*	**Country *(States in parentheses)***
serieguttatus	Costa Rica, Guatemala, Panama, Venezuela, Mexico *(Campeche, Chiapas, Yucatan, Quintana Roo, Jalisco)*
sosia	Brazil, United States *(Florida)*
spondiae	Costa Rica, El Salavador, Guatemala, Panama, Mexico *(Campeche, Chiapas, Guerrero)*
stridulator	Mexico *(Jalisco)*
teutoniensis	Paraguay, Mexico *(Oaxaca)*
veracruz	Mexico *(Veracruz)*
vitis	United States *(Arizona, Texas)*

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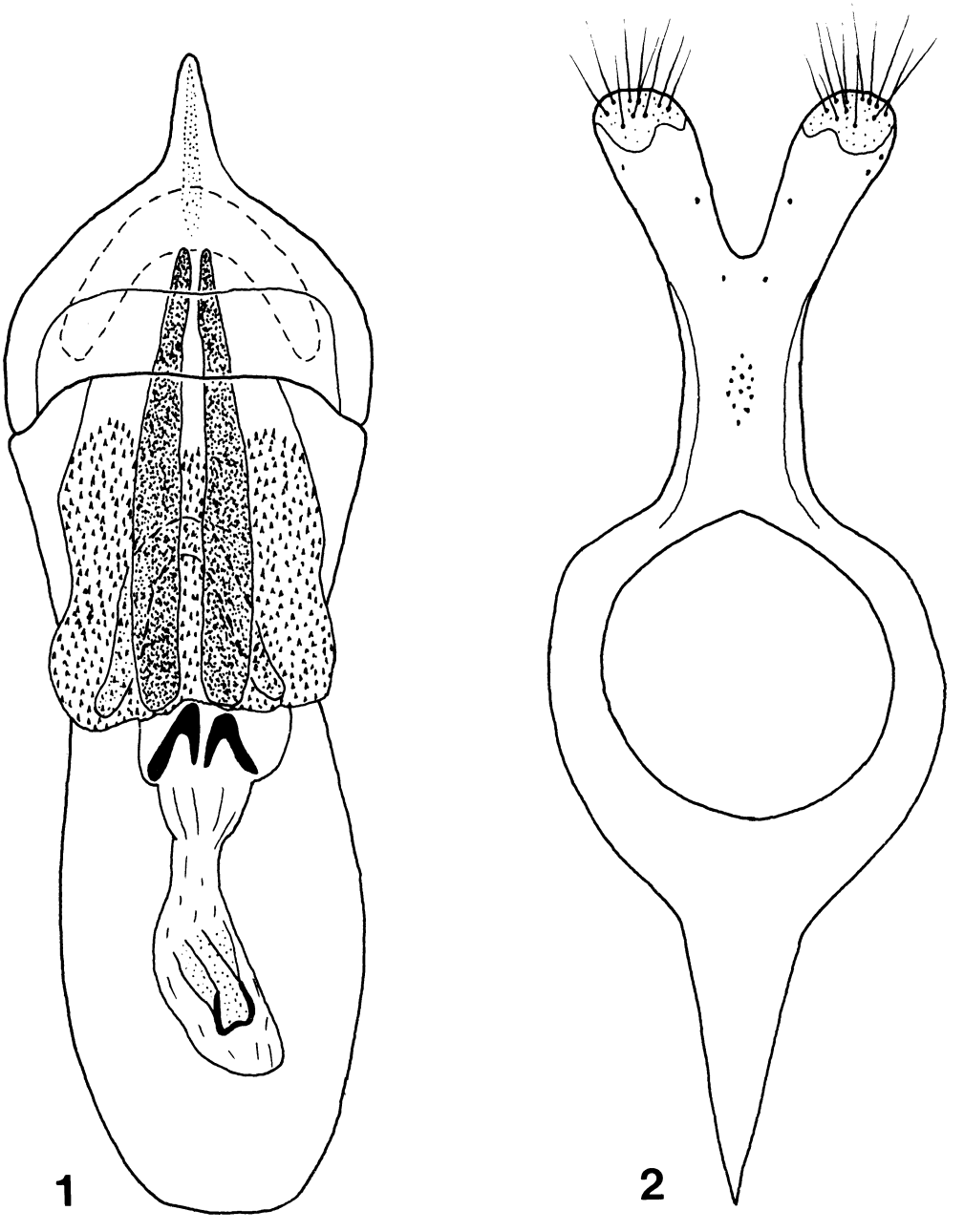
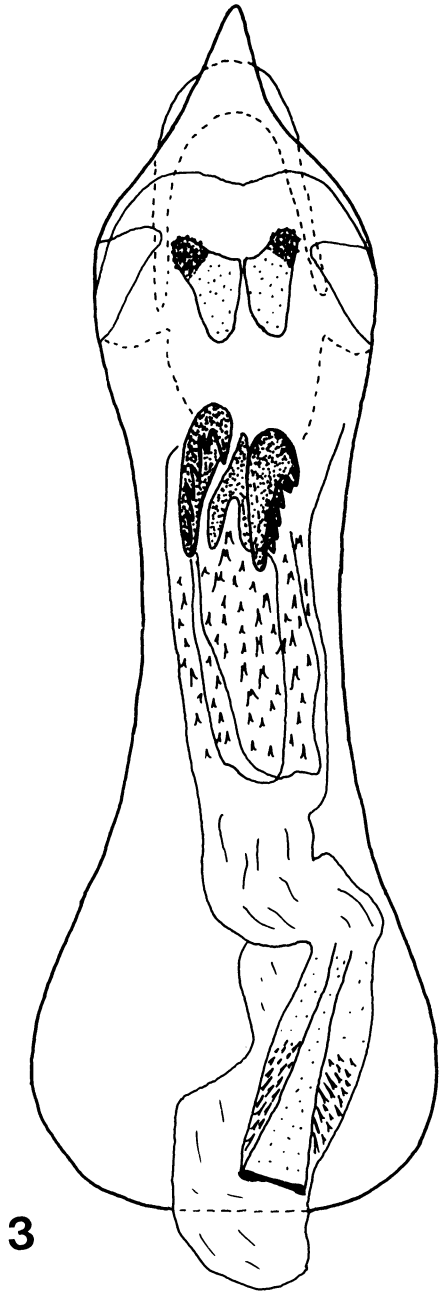
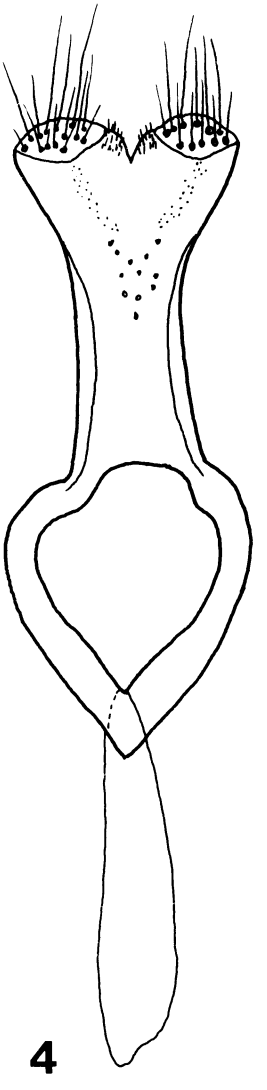
Figures

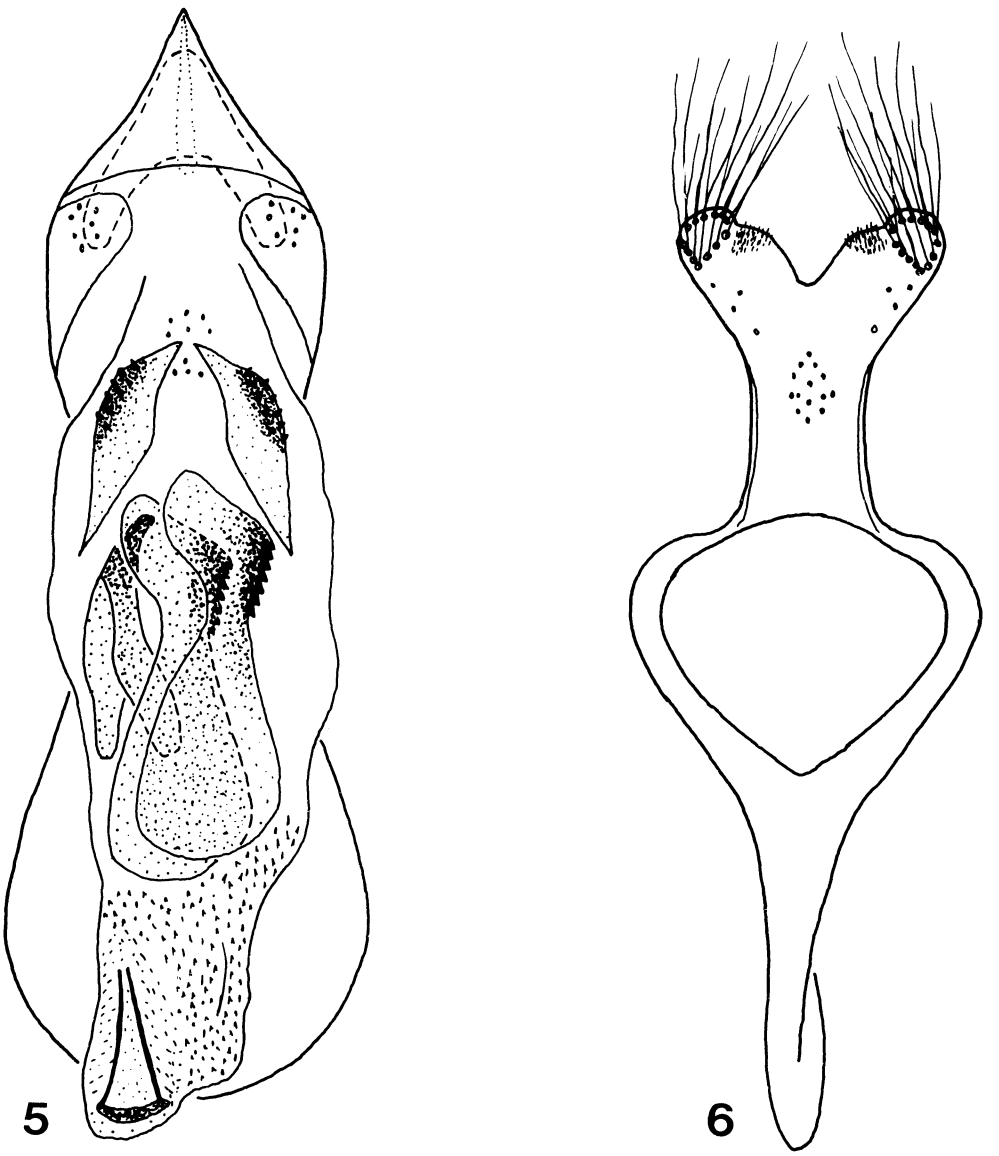


Figures 1–2. *Amblycerus acapulcensis,* male genitalia.
1. Median lobe, ventral view. 2. Lateral lobes, ventral view.

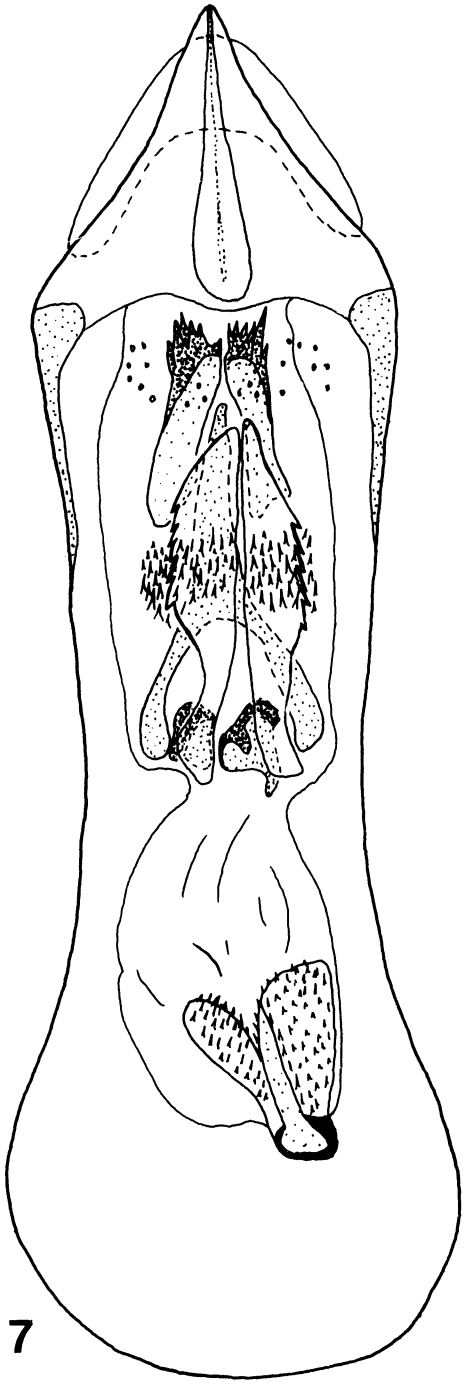


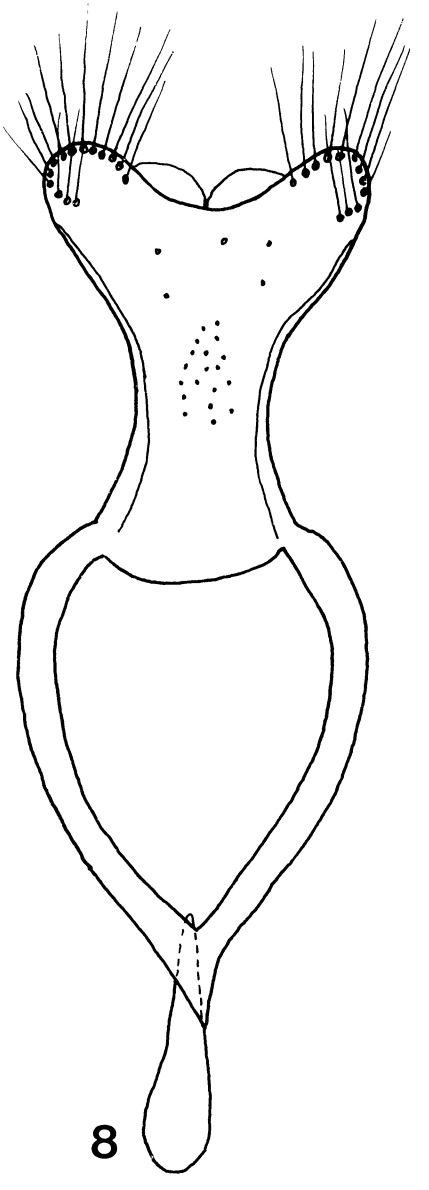


Figures 3–4. ***Amblycerus alternatus,*** **male genitalia.**
3. Median lobe, ventral view. 4. Lateral lobes, ventral view.

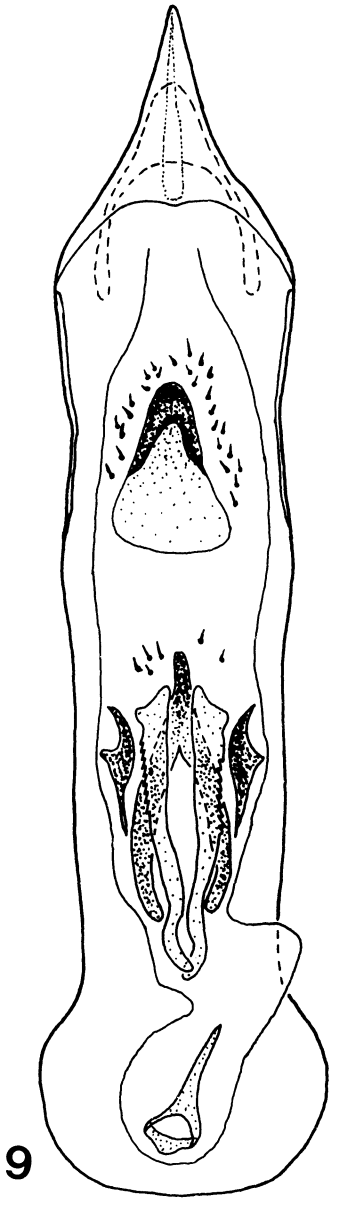


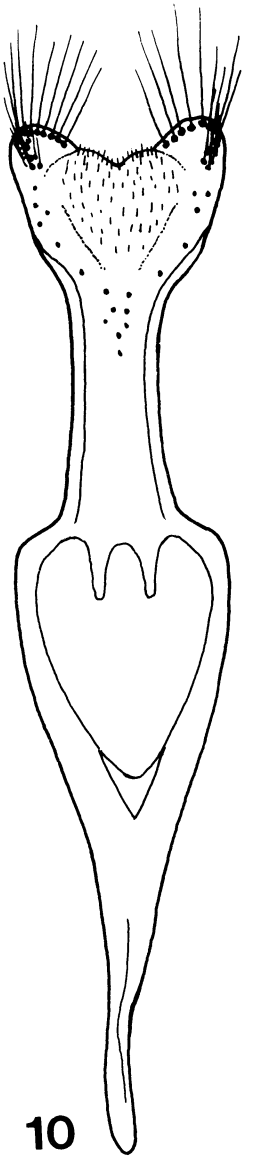
Figures 5–6. ***Amblycerus anosignatus,*** **male genitalia.**
5. Median lobe, ventral view. 6. Lateral lobes, ventral view.



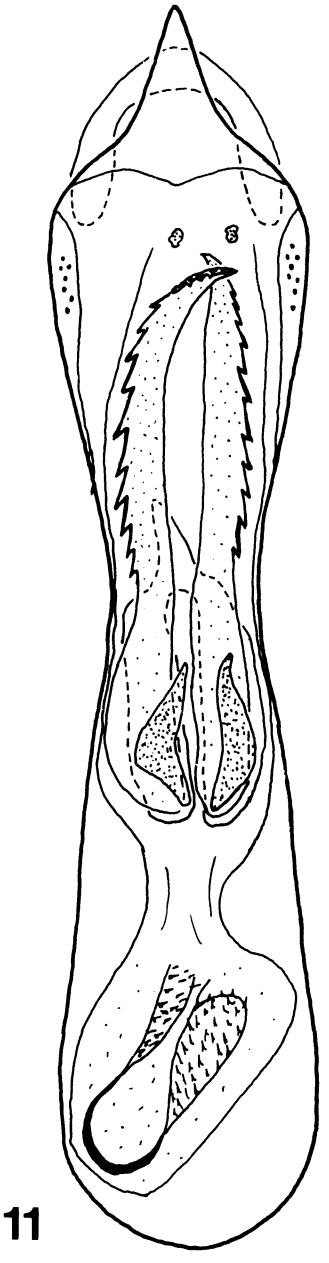


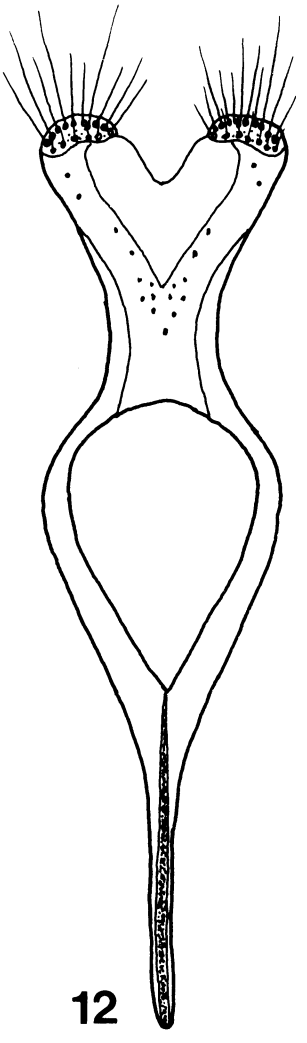
Figures 7–8. ***Amblycerus atkinsoni,*** **male genitalia.**
7. Median lobe, ventral view. 8. Lateral lobes, ventral view.



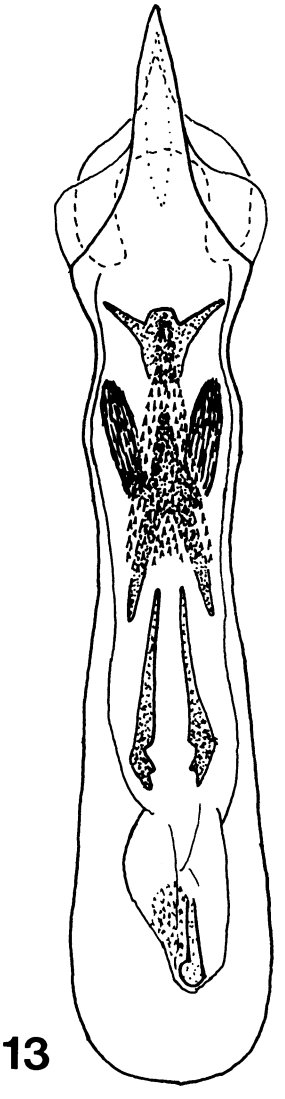


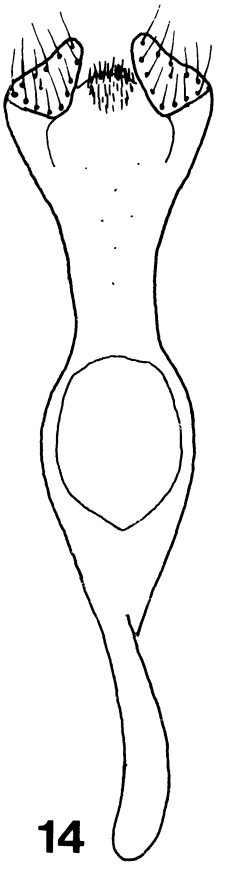
Figures 9–10. ***Amblycerus baracoensis,*** **male genitalia.**
9. Median lobe, ventral view. 10. Lateral lobes, ventral view.



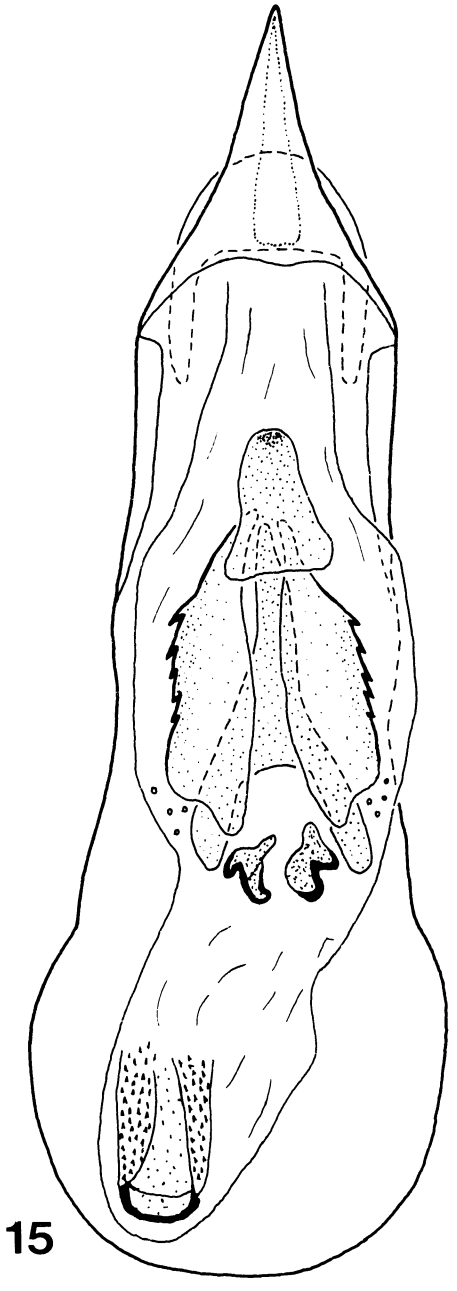


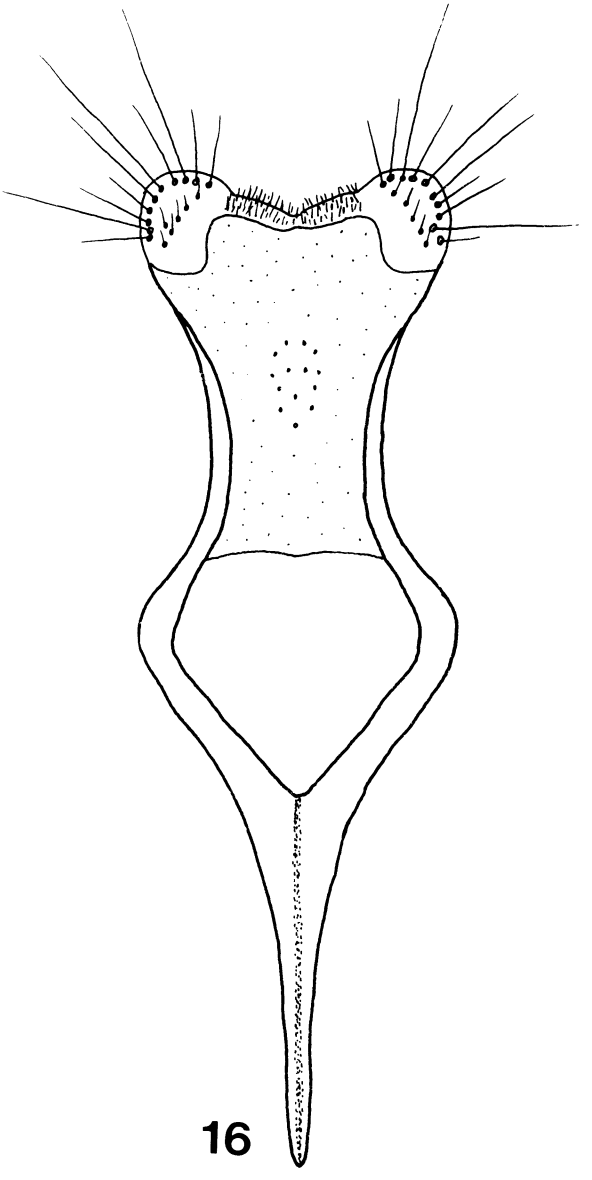
Figures 11–12. ***Amblycerus barcenae,*** **male genitalia.**
11. Median lobe, ventral view. 12. Lateral lobes, ventral view.



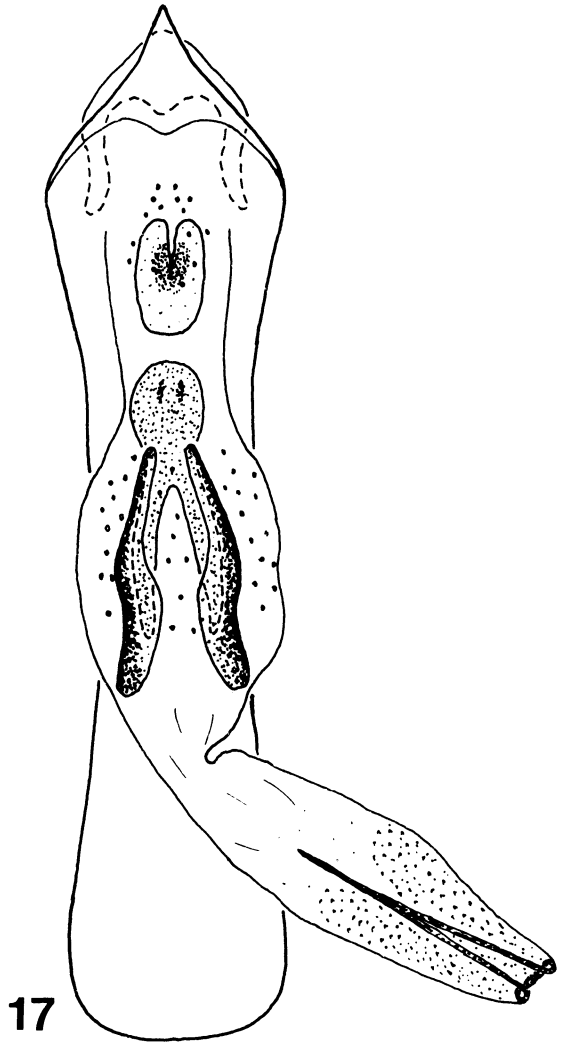


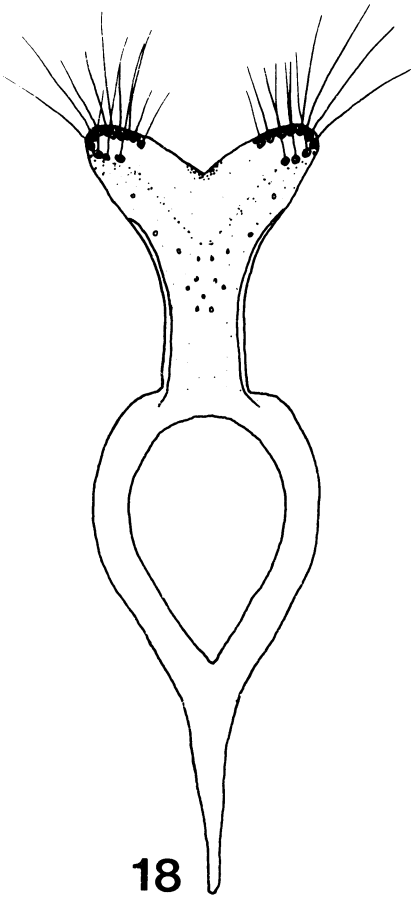
Figures 13–14. ***Amblycerus biolleyi,*** **male genitalia.**
13. Median lobe, ventral view. 14. Lateral lobes, ventral view.



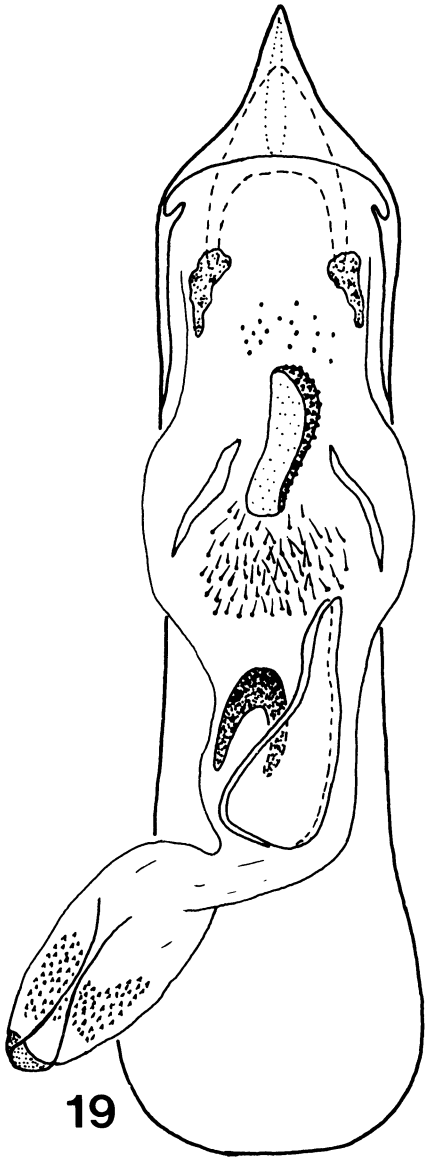


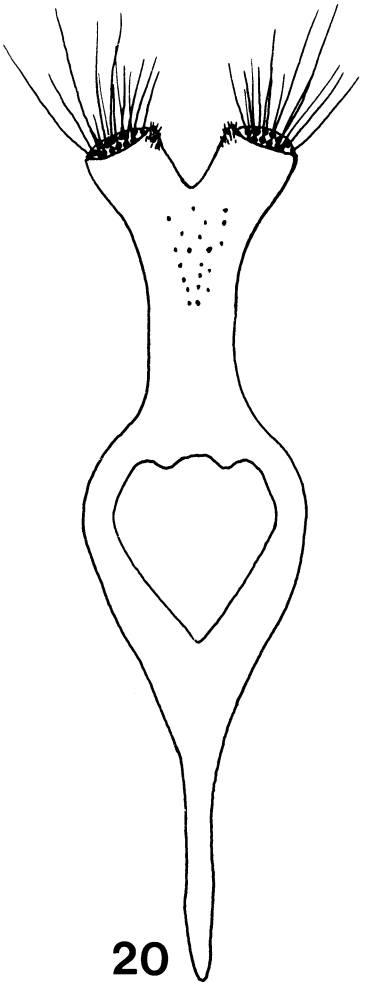
Figures 15–16. ***Amblycerus cerdanicola,*** **male genitalia.**
15. Median lobe, ventral view. 16. Lateral lobes, ventral view.



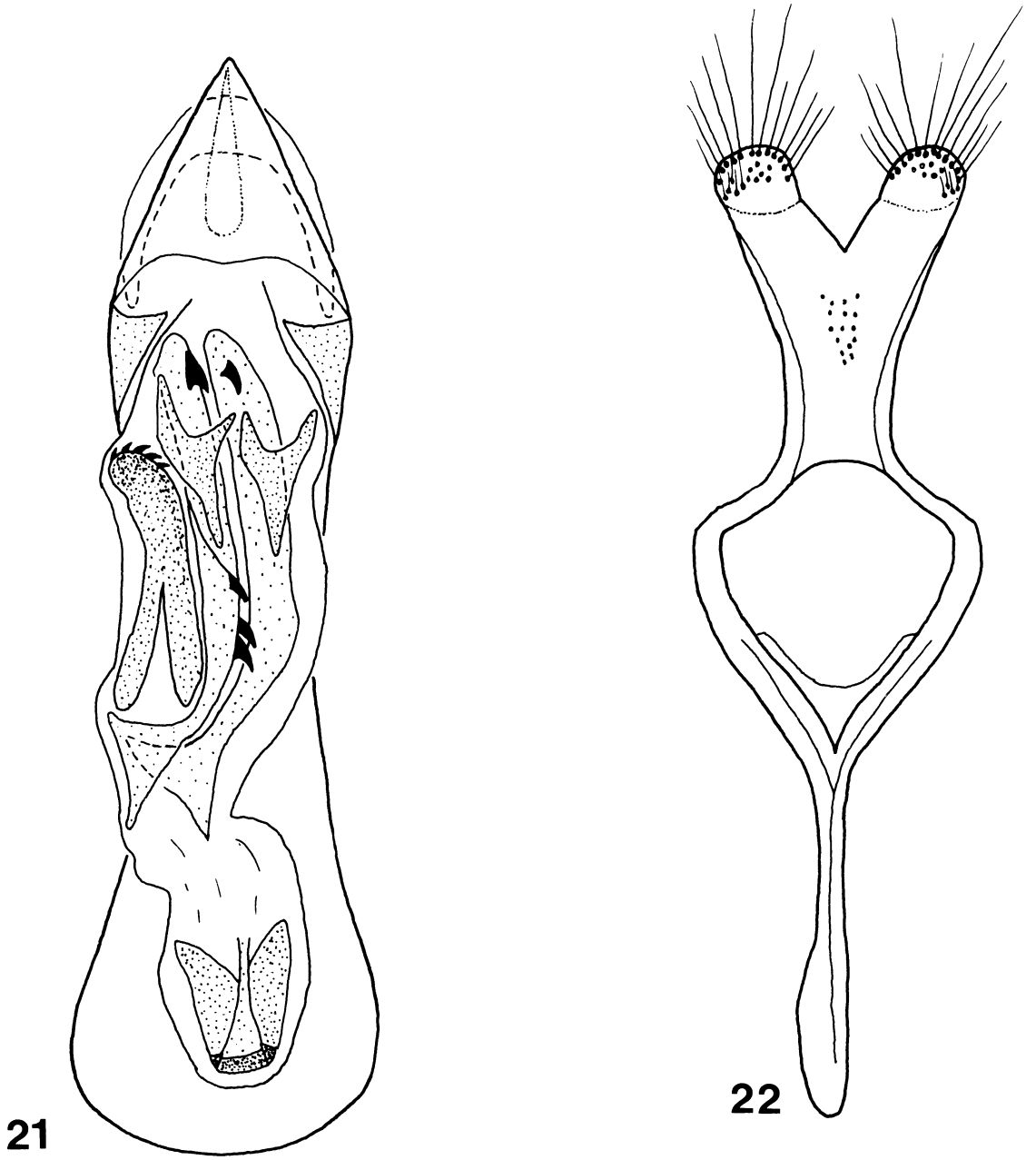


Figures 17–18. ***Amblycerus championi,*** **male genitalia.**
17. Median lobe, ventral view. 18. Lateral lobes, ventral view.

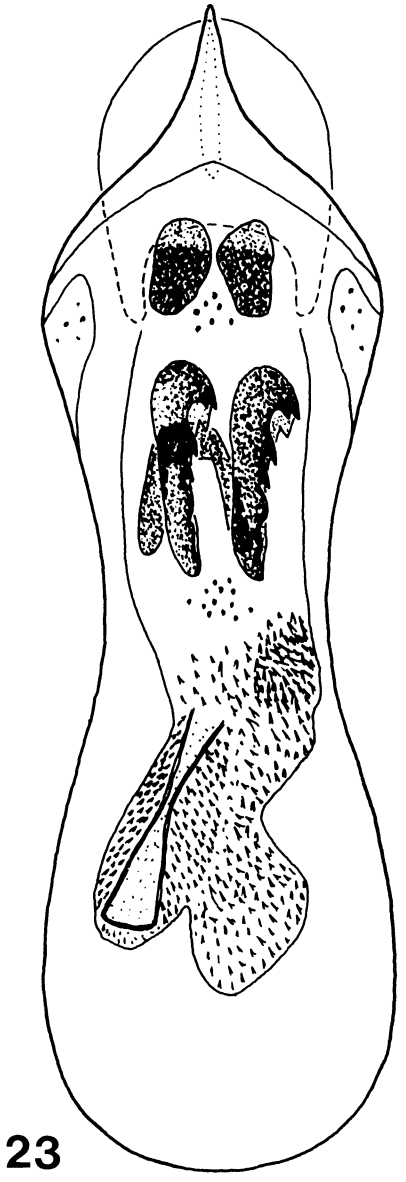


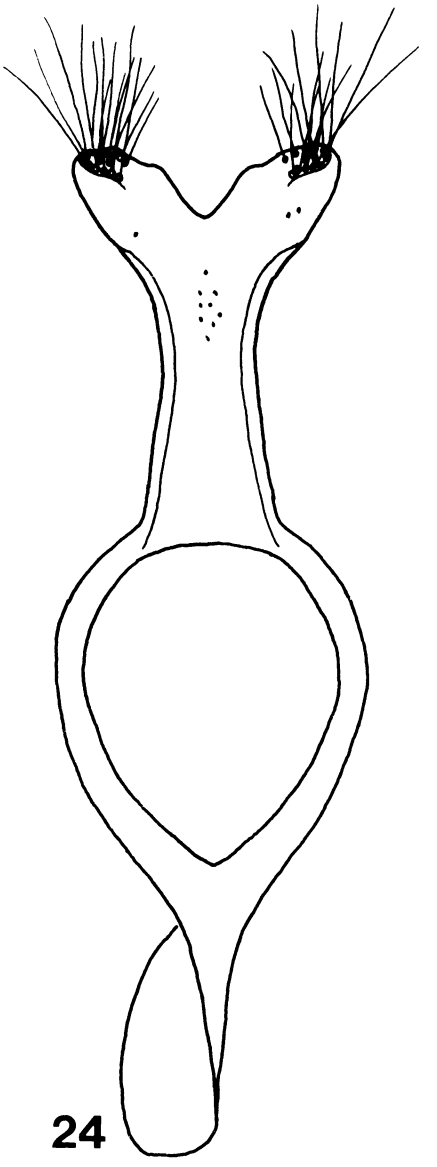


Figures 19–20. ***Amblycerus chiapas,*** **male genitalia.**
19. Median lobe, ventral view. 20. Lateral lobes, ventral view.

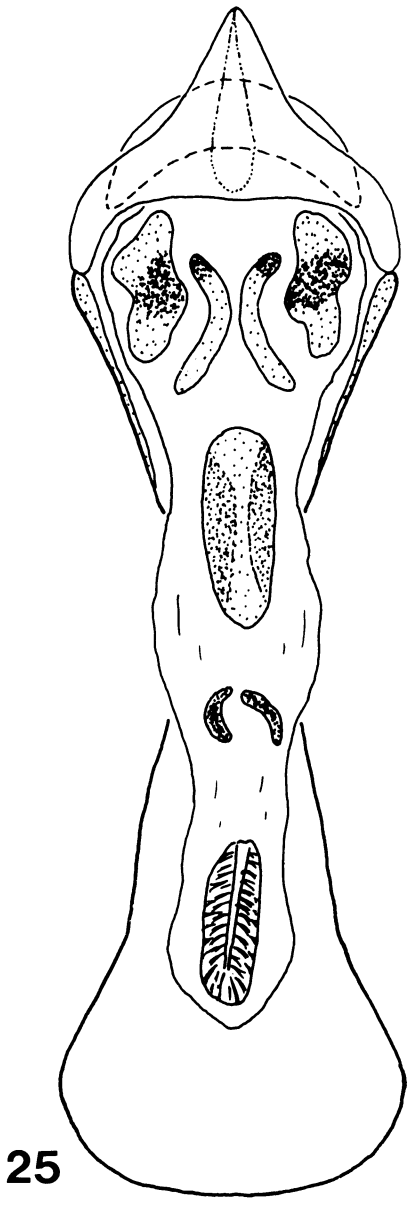


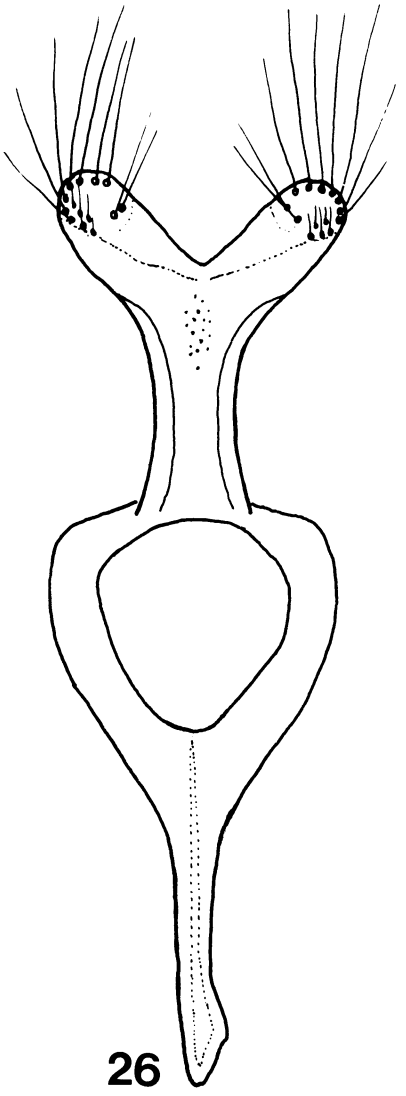
Figures 21–22. *Amblycerus cistelinus*, male genitalia.
21. Median lobe, ventral view. 22. Lateral lobes, ventral view.



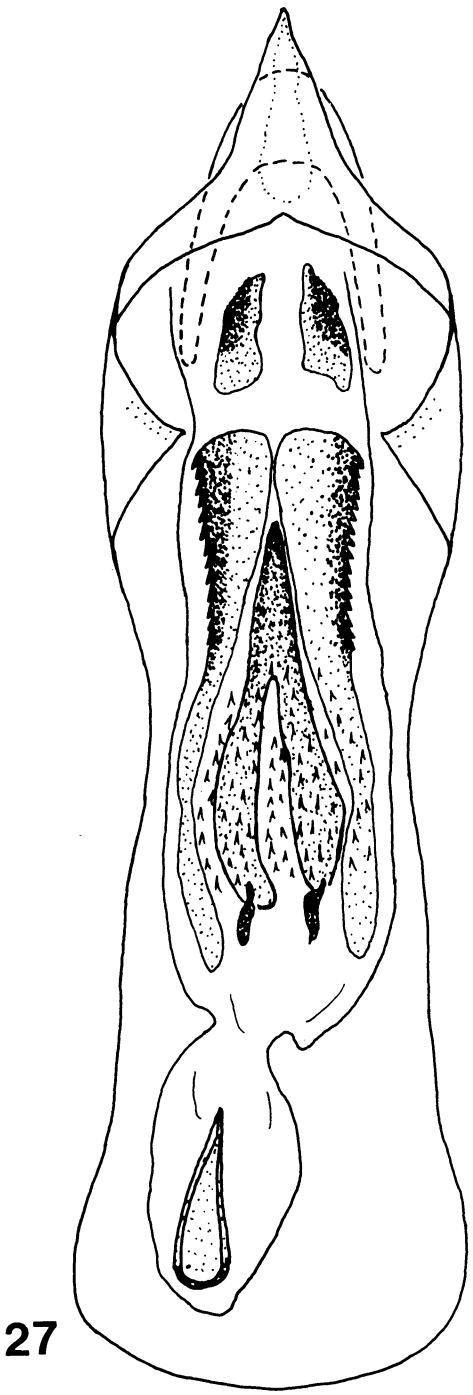


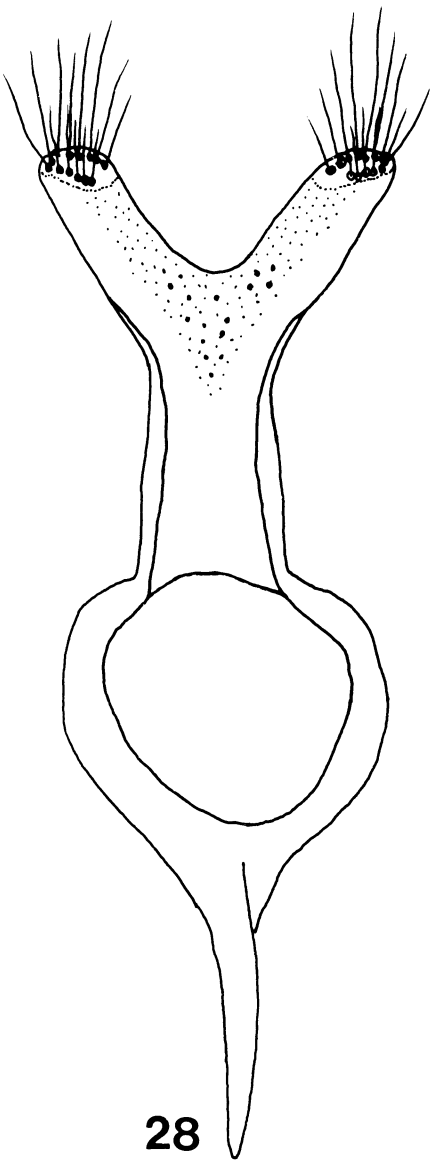
Figures 23–24. ***Amblycerus cuernavacensis,*** **male genitalia.**
23. Median lobe, ventral view. 24. Lateral lobes, ventral view.



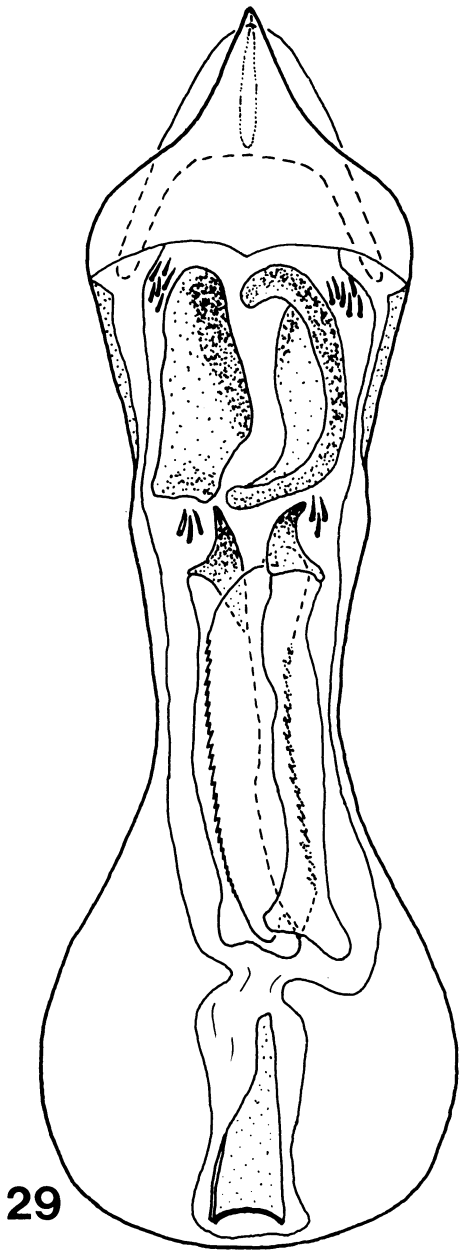


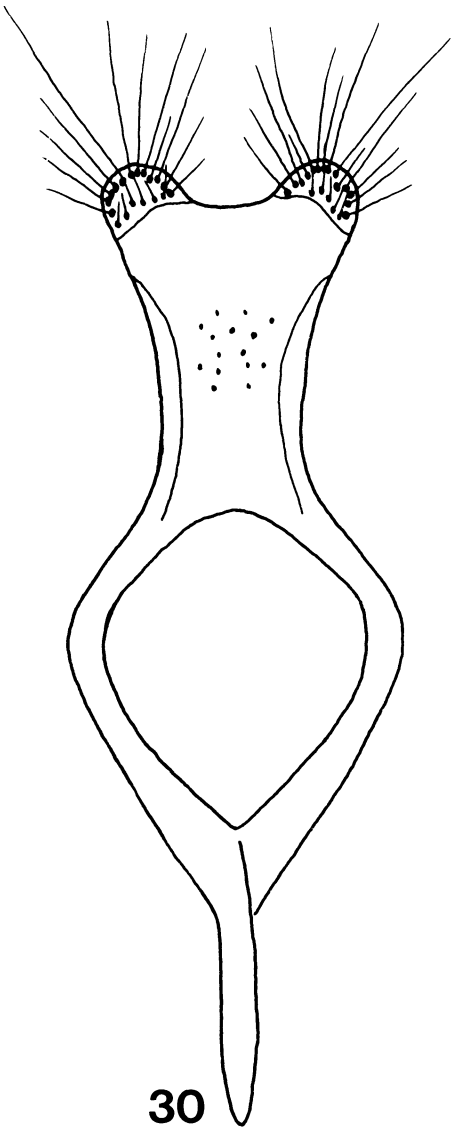
Figures 25–26. ***Amblycerus epsilon,*** **male genitalia.**
25. Median lobe, ventral view. 26. Lateral lobes, ventral view.



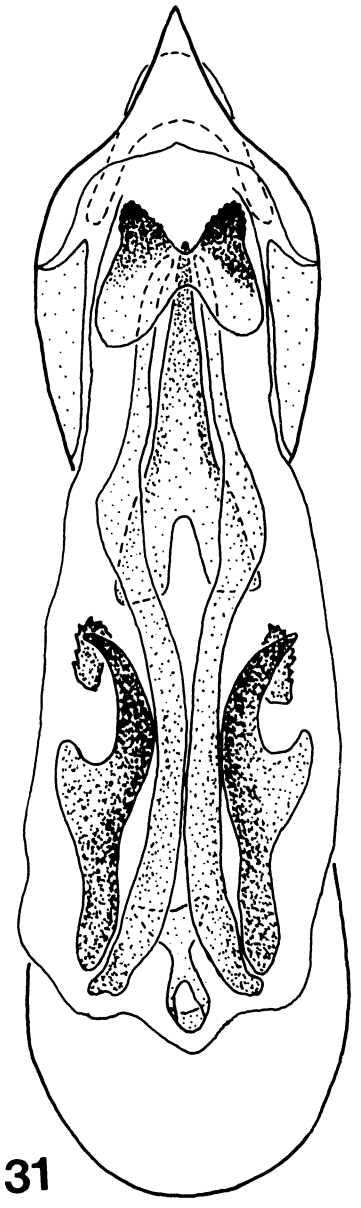


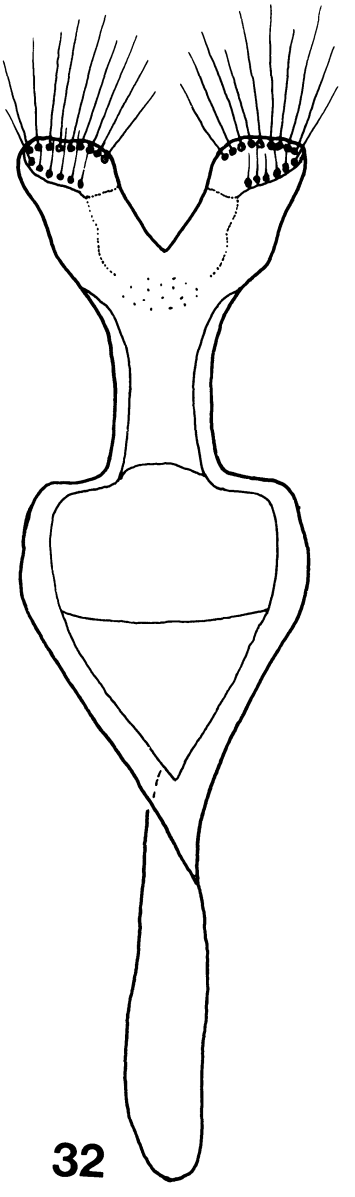
Figures 27–28. ***Amblycerus eustrophoides*****, male genitalia.**
27. Median lobe, ventral view. 28. Lateral lobes, ventral view.



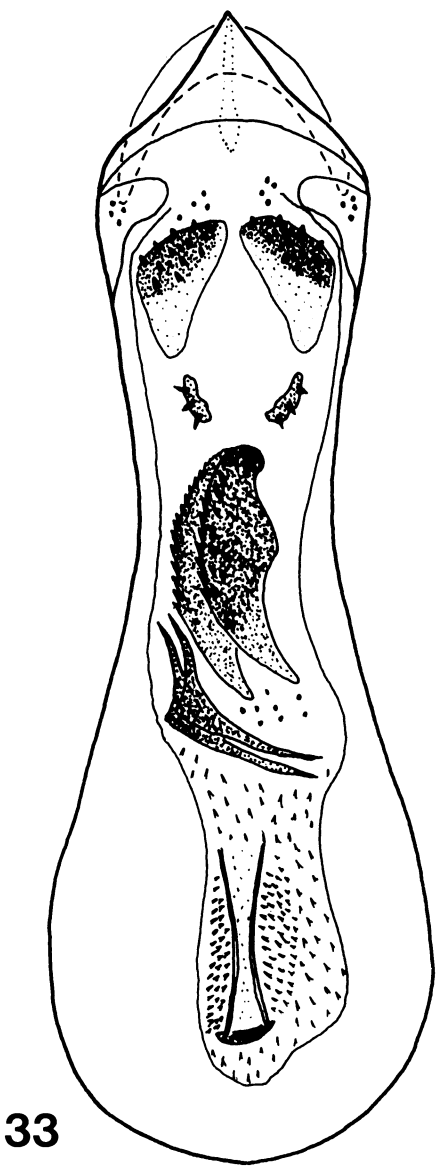


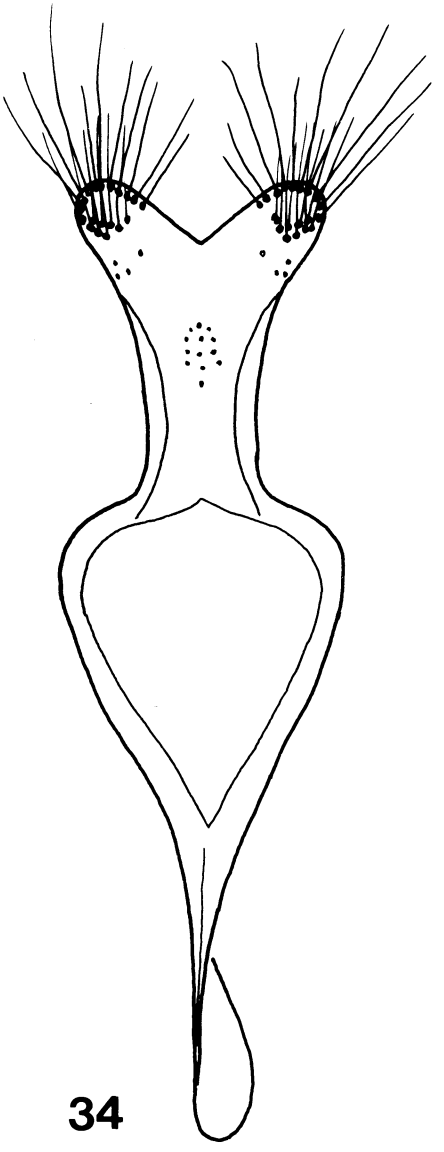
Figures 29–30. ***Amblycerus evangelinae,*** **male genitalia.**
29. Median lobe, ventral view. 30. Lateral lobes, ventral view.





Figures 31–32. ***Amblycerus guazumicola,*** **male genitalia.**
31. Median lobe, ventral view. 32. Lateral lobes, ventral view.





Figures 33–34. ***Amblycerus guerrerensis,*** **male genitalia.**
33. Median lobe, ventral view. 34. Lateral lobes, ventral view.

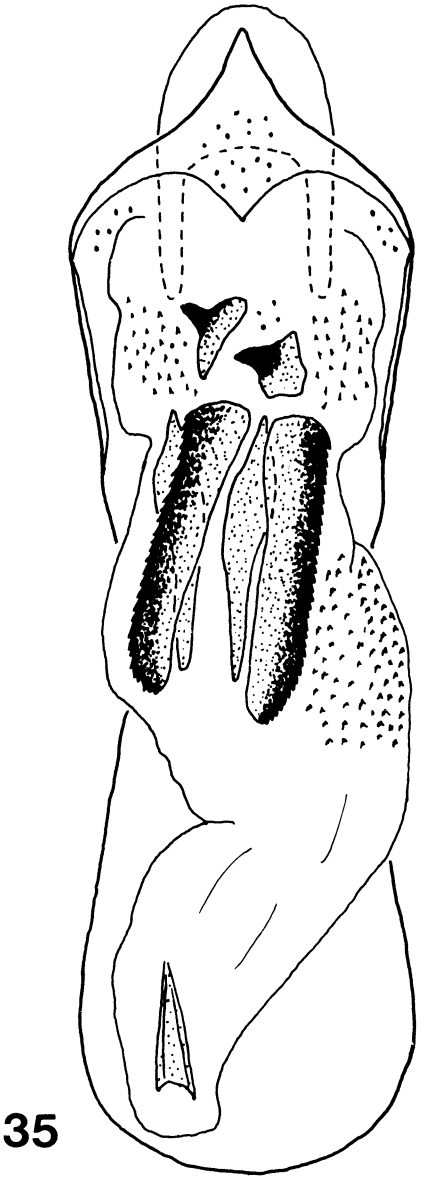
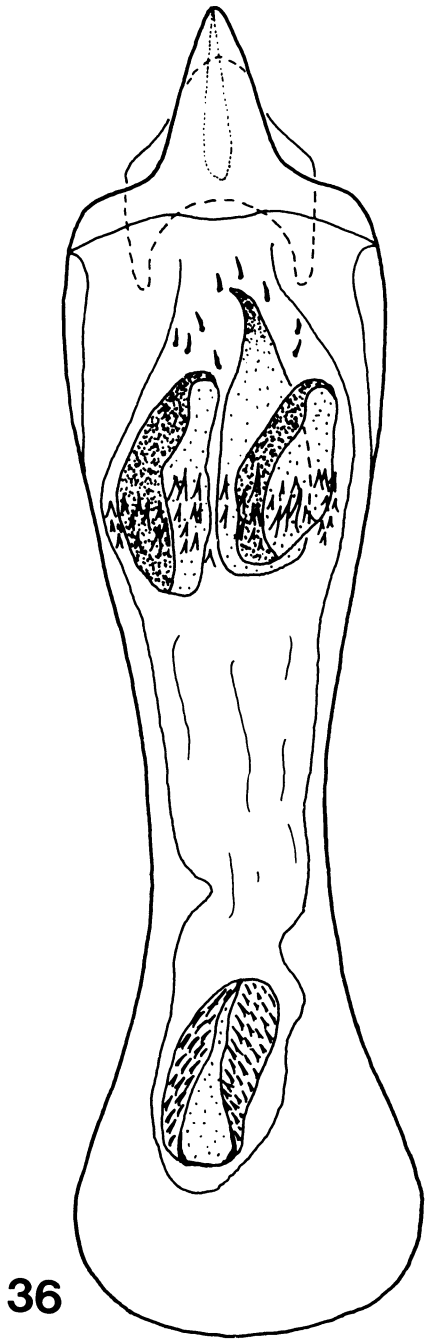
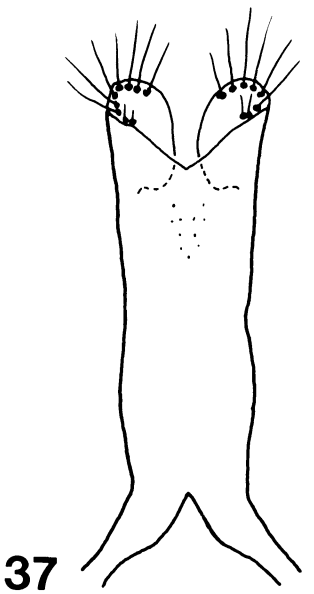
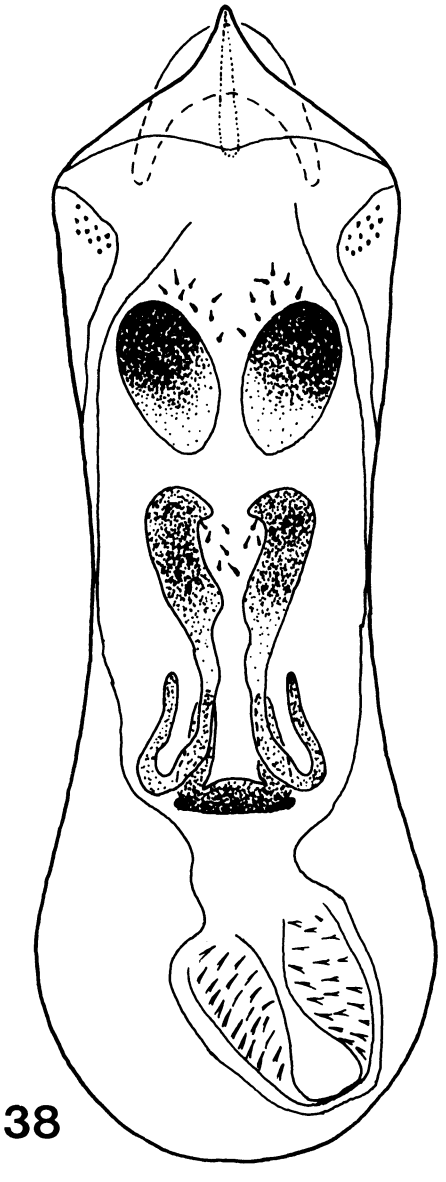


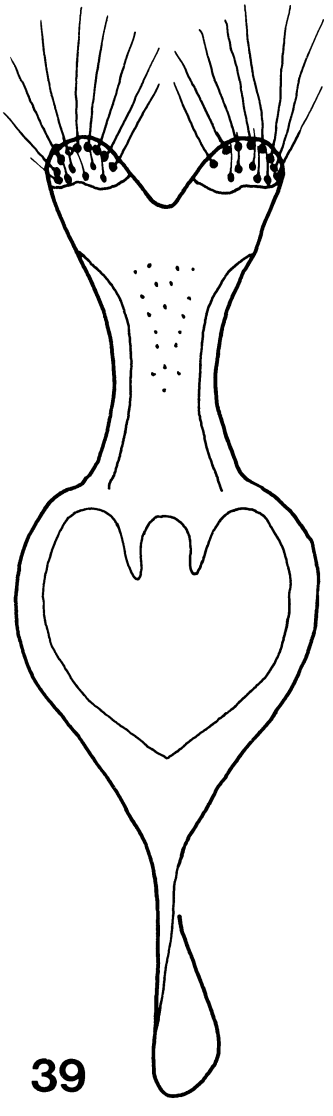
Figure 35. ***Amblycerus hespenheidei,*** **male genitalia.**
35. Median lobe, ventral view.



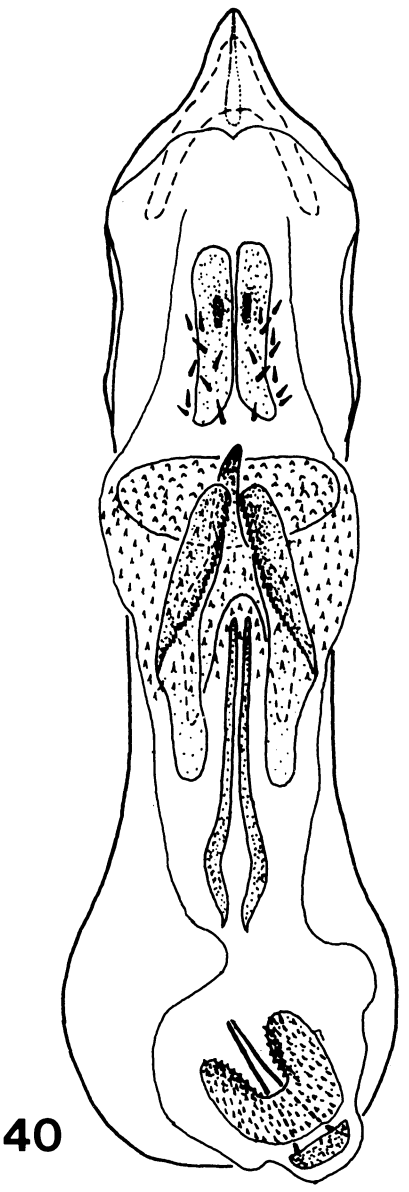


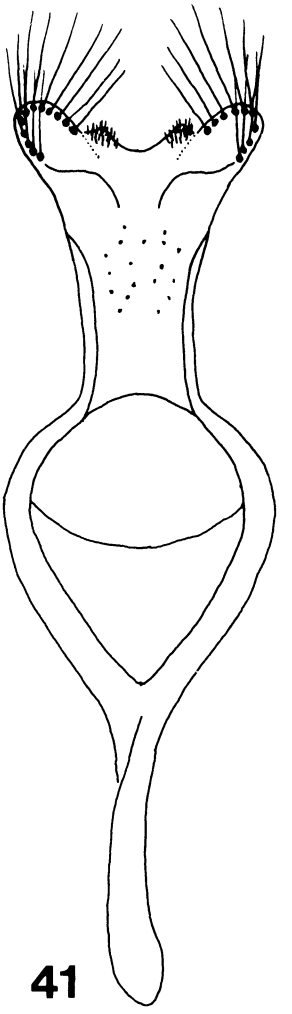
Figures 36–37. *Amblycerus ireriae,* male genitalia.
36. Median lobe, ventral view. 37. Lateral lobes, ventral view.



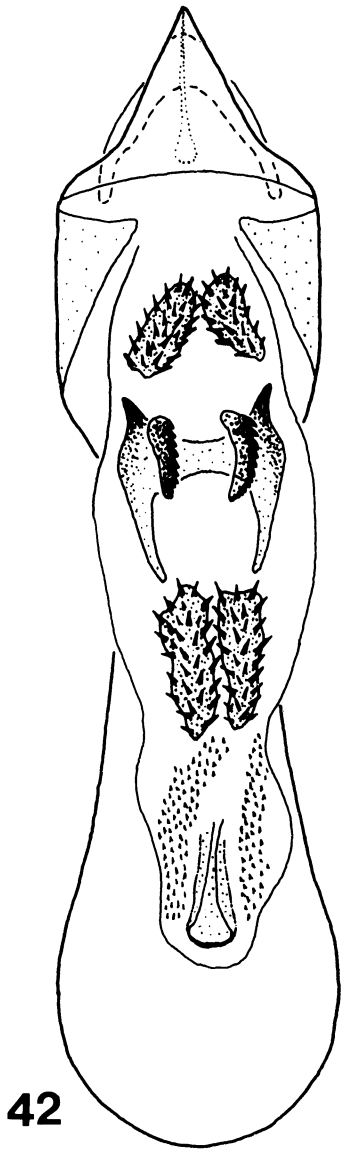


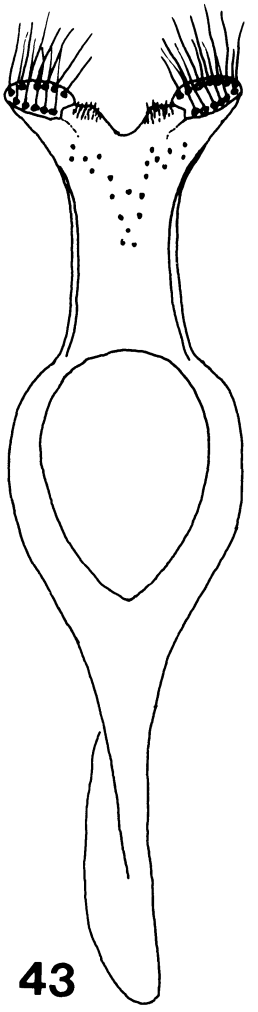
Figures 38–39. ***Amblycerus mariae,*** **male genitalia.**
38. Median lobe, ventral view. 39. Lateral lobes, ventral view.



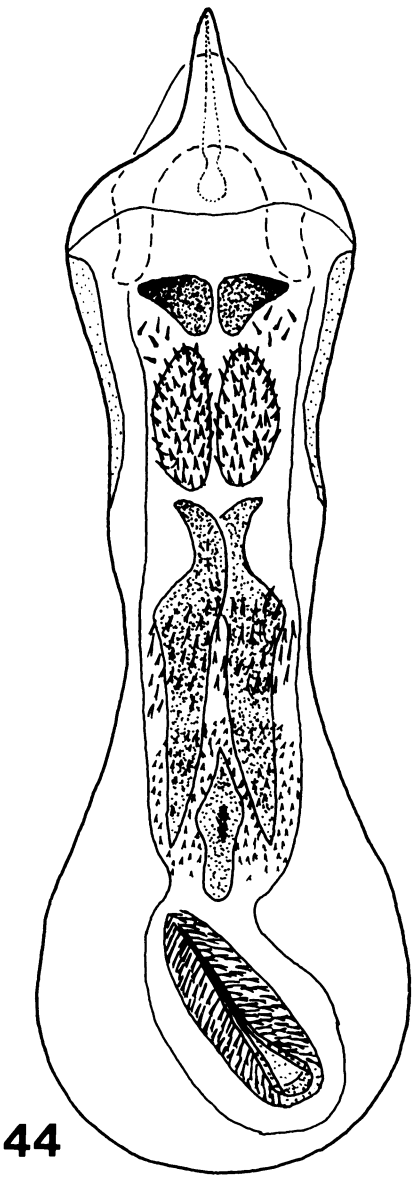


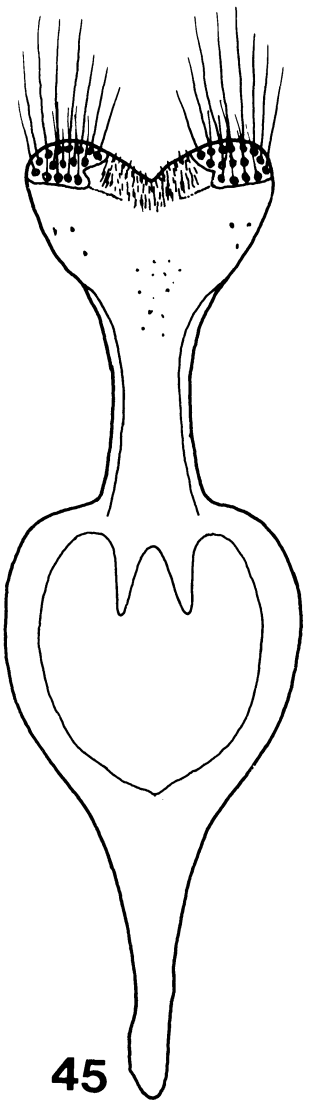
Figures 40–41. ***Amblycerus marmoratus,*** **male genitalia.**
40. Median lobe, ventral view. 41. Lateral lobes, ventral view.



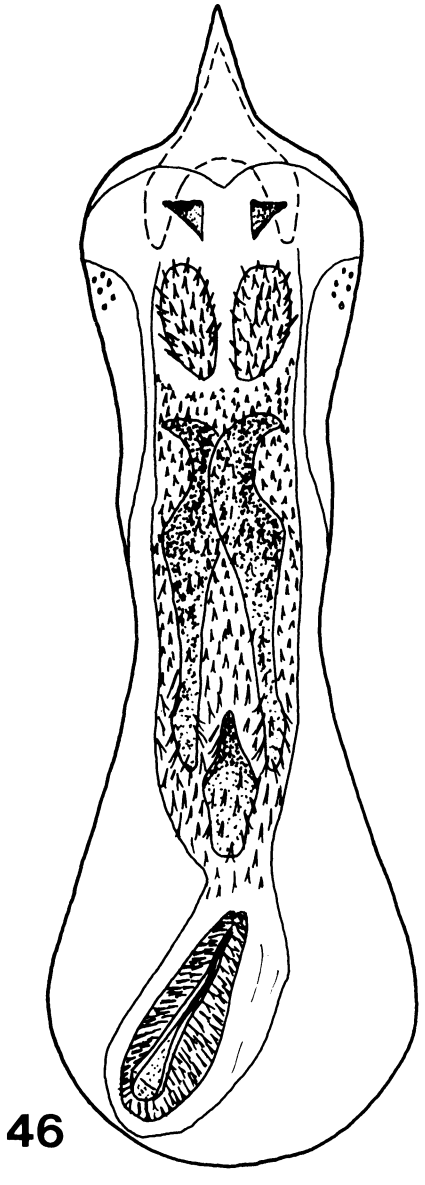


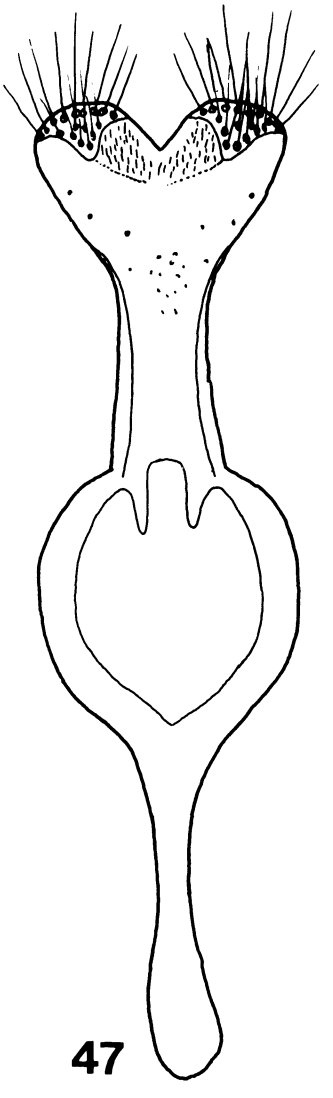
Figures 42–43. ***Amblycerus multiflocculus*, male genitalia.**
42. Median lobe, ventral view. 43. Lateral lobes, ventral view.



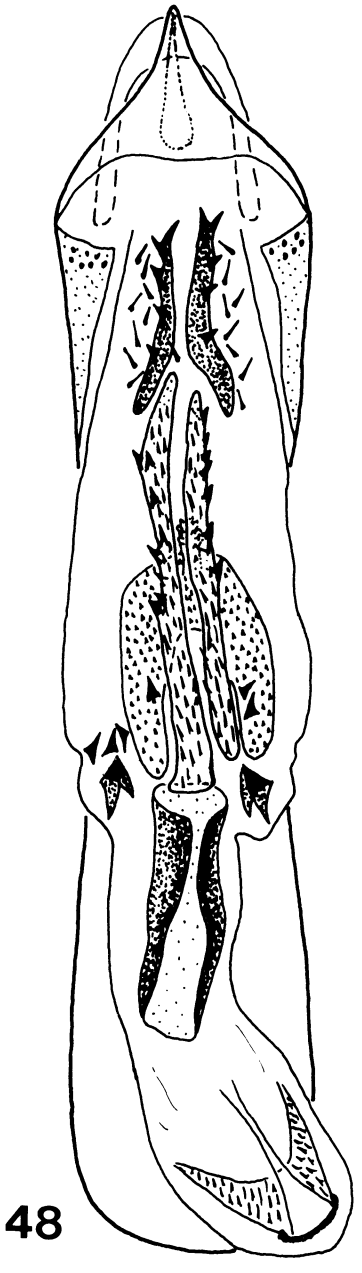


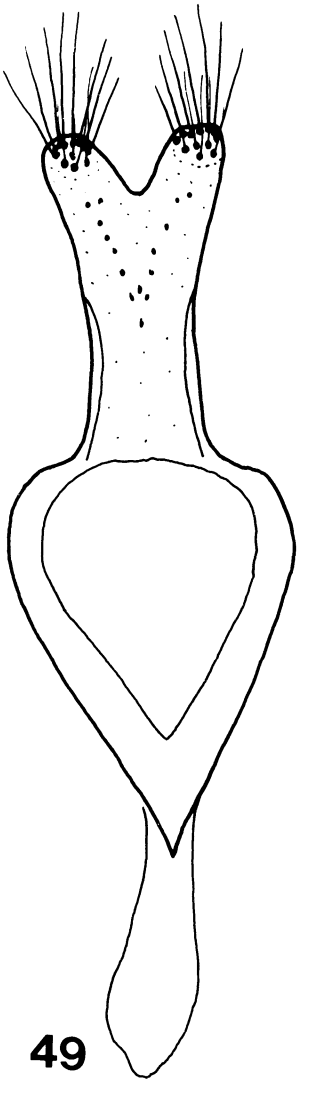
Figures 44–45. ***Amblycerus nigromarginatus,*** **male genitalia.**
44. Median lobe, ventral view. 45. Lateral lobes, ventral view.



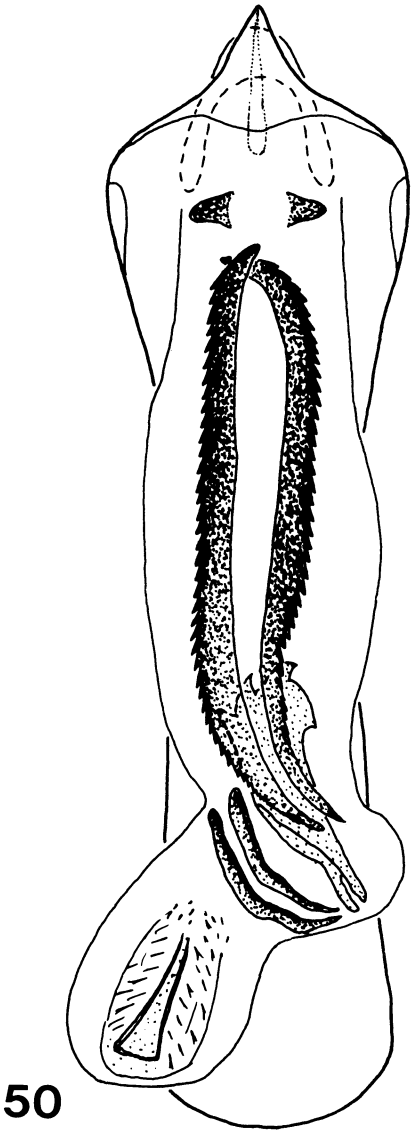


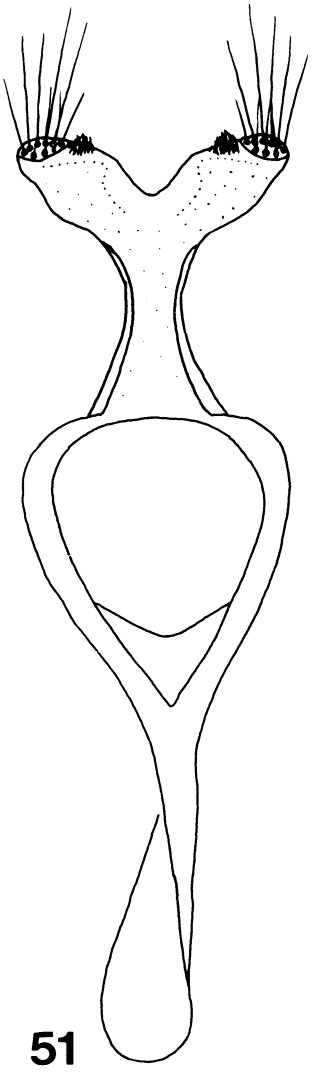
Figures 46–47. *Amblycerus obscurus*, male genitalia.
46. Median lobe, ventral view. 47. Lateral lobes, ventral view.



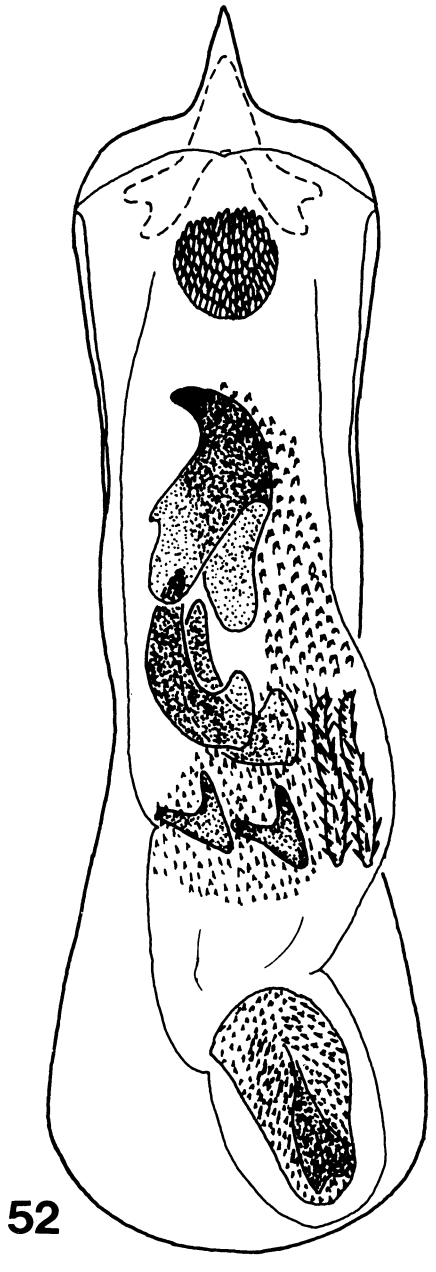


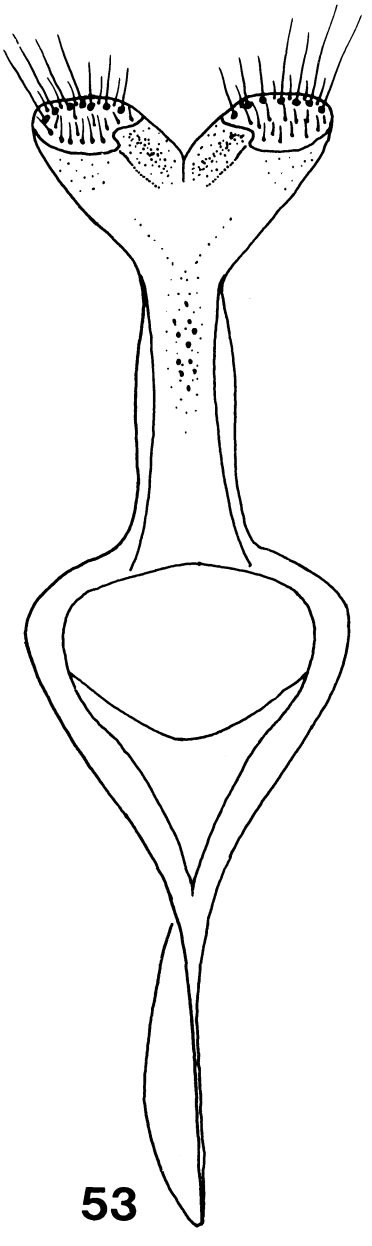
Figures 48–49. ***Amblycerus perfectus,*** **male genitalia.**
48. Median lobe, ventral view. 49. Lateral lobes, ventral view.



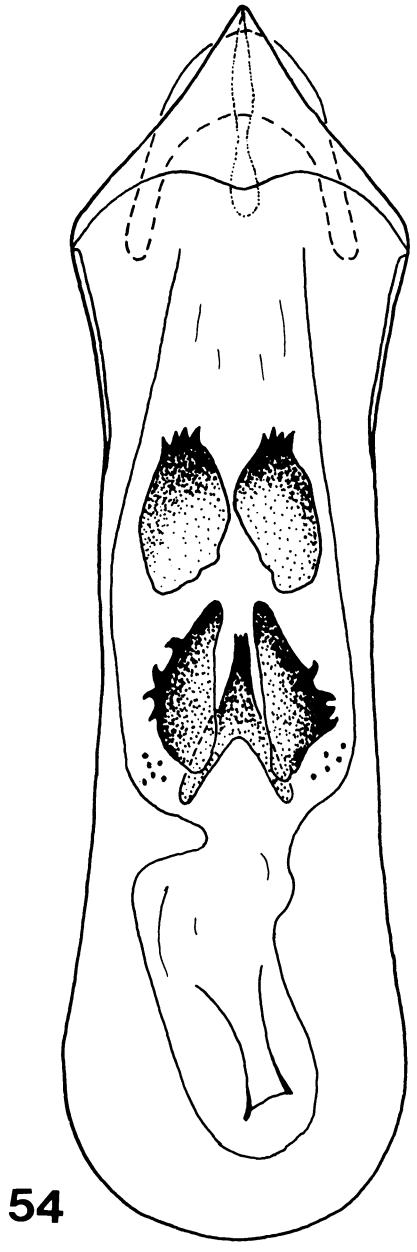


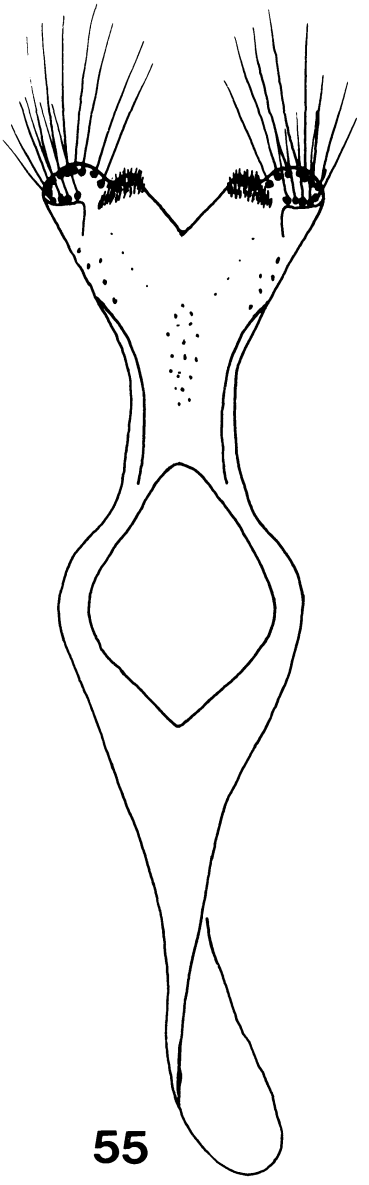
Figures 50–51. ***Amblycerus pictus,*** **male genitalia.**
50. Median lobe, ventral view. 51. Lateral lobes, ventral view.



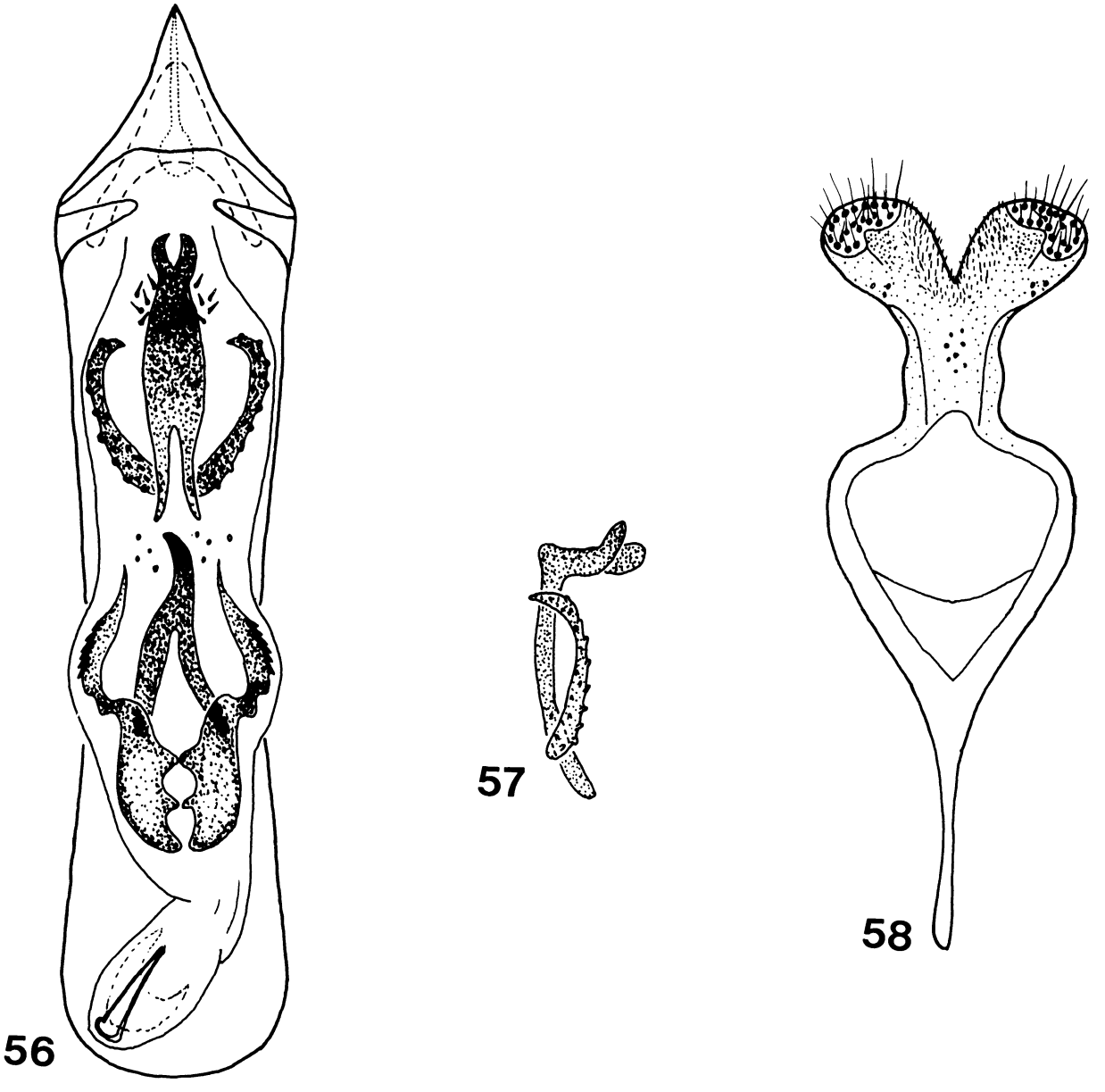


Figures 52–53. *Amblycerus piurae,* male genitalia.
52. Median lobe, ventral view. 53. Lateral lobes, ventral view.

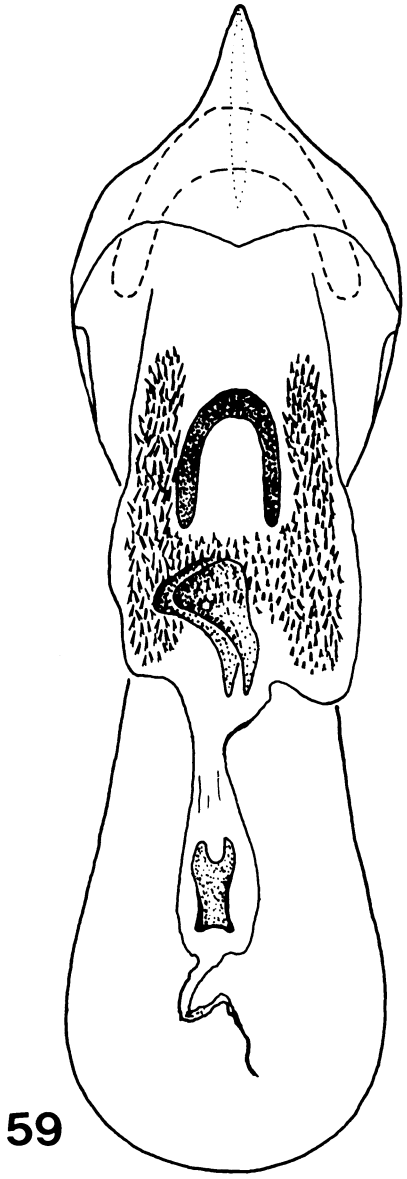


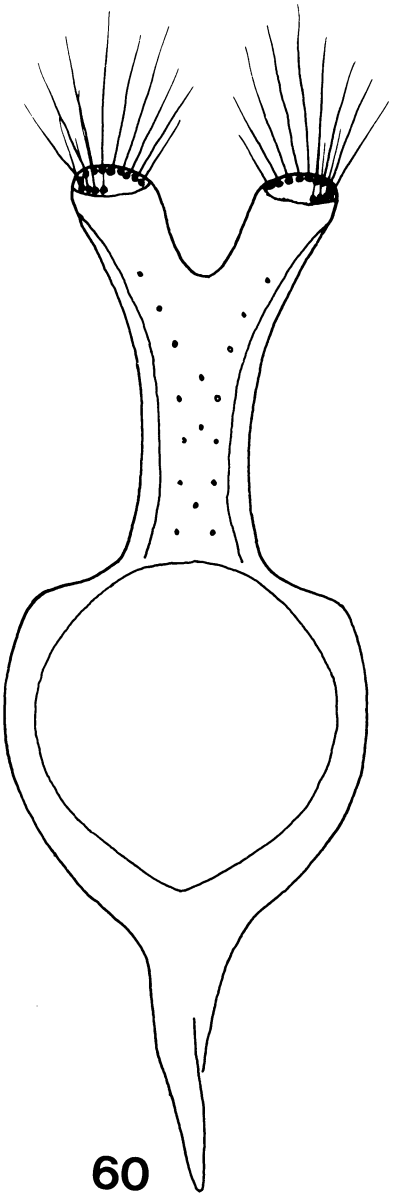


Figures 54–55. ***Amblycerus pterocarpae,*** **male genitalia.**
54. Median lobe, ventral view. 55. Lateral lobes, ventral view.

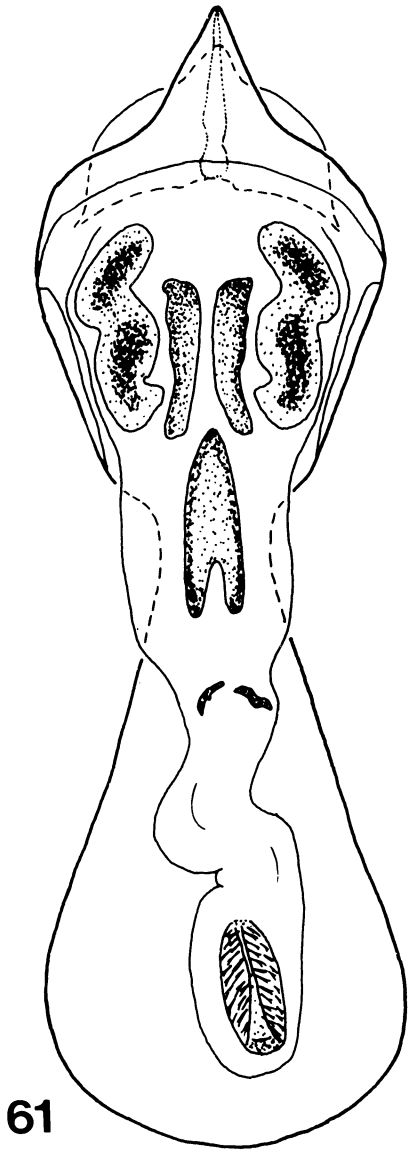


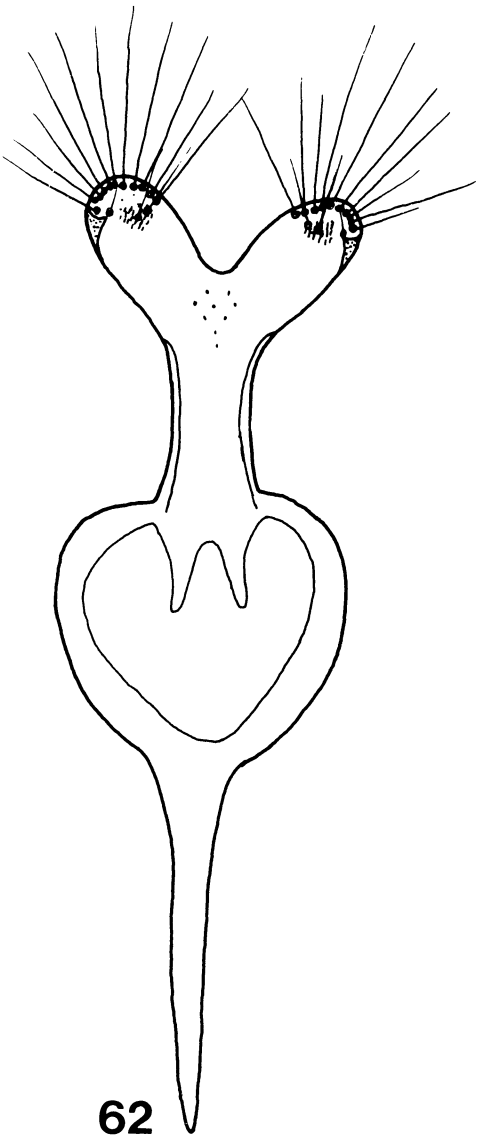
Figures 56–58. ***Amblycerus pygidialis,*** **male genitalia.**
56. Median lobe, ventral view. 57. Basal sclerites of median lobe.
58. Lateral lobes, ventral view.



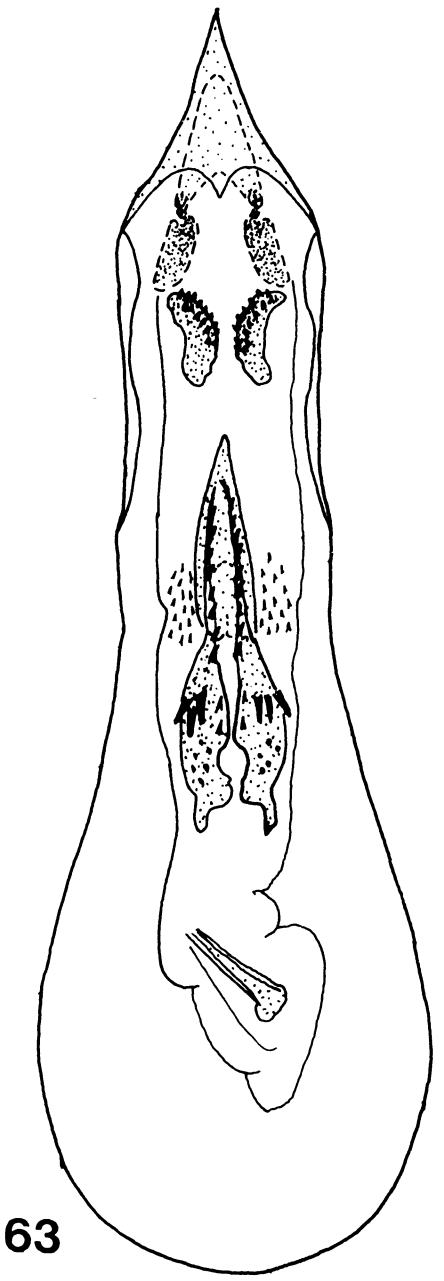


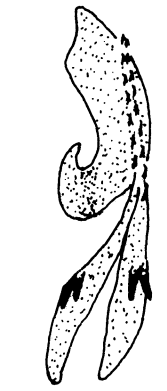
Figures 59–60. ***Amblycerus robiniae,*** **male genitalia.**
59. Median lobe, ventral view. 60. Lateral lobes, ventral view.

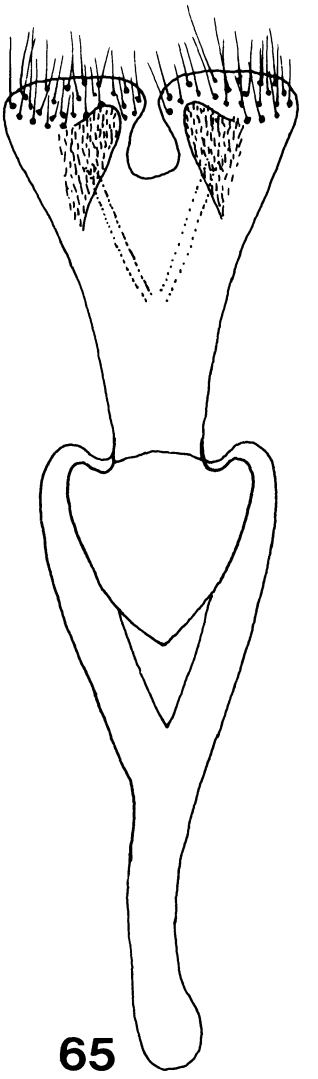




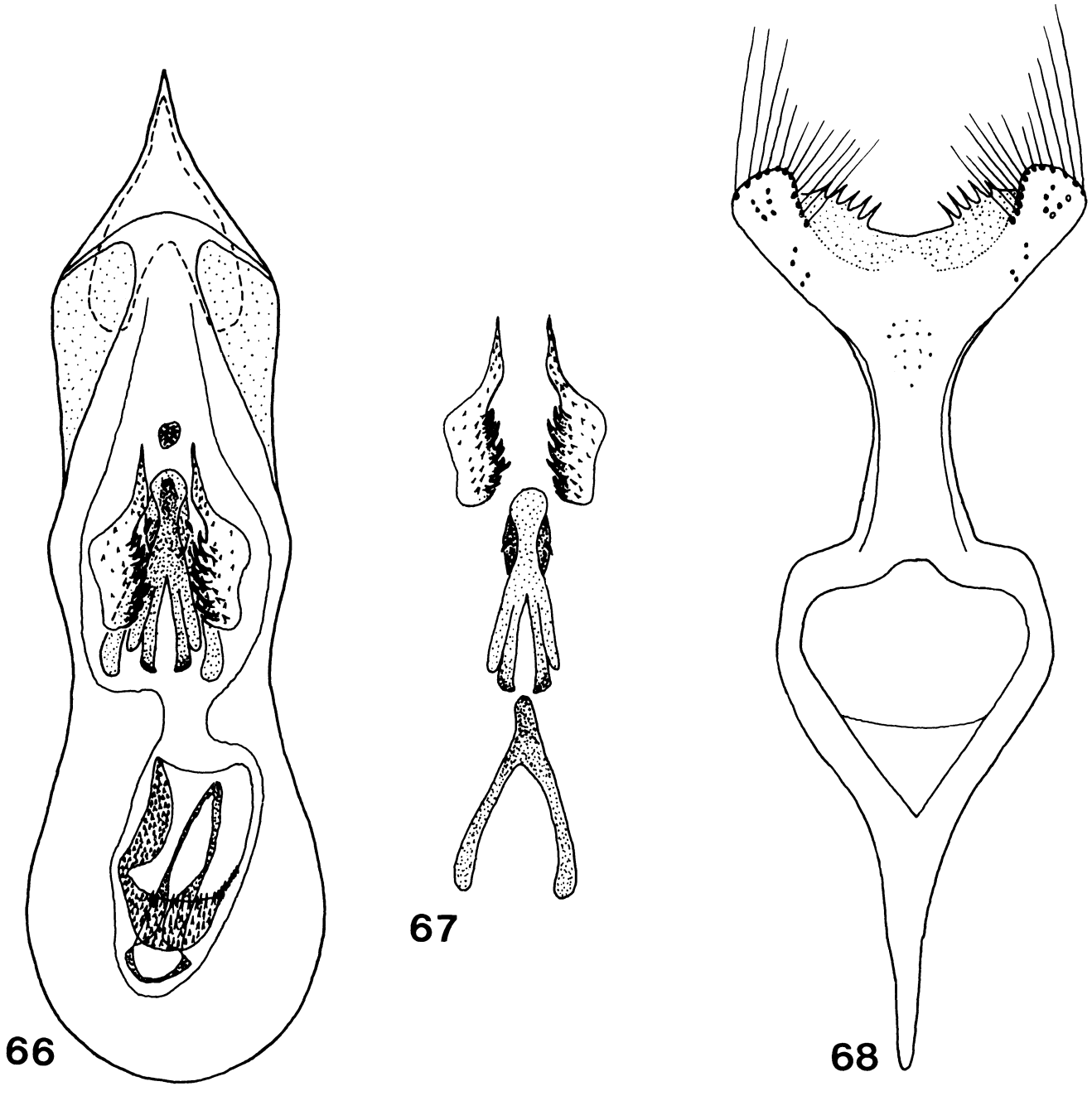
Figures 61–62. ***Amblycerus sallei,*** **male genitalia.**
61. Median lobe, ventral view. 62. Lateral lobes, ventral view.



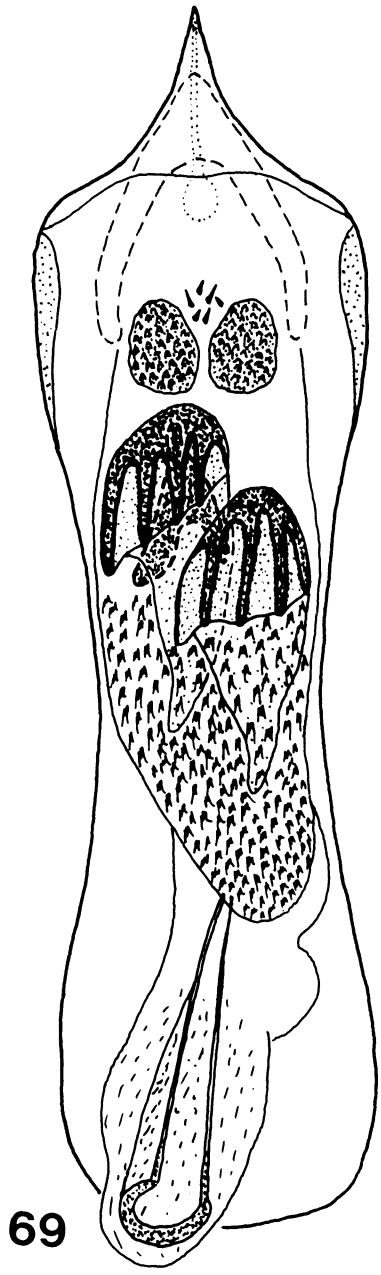


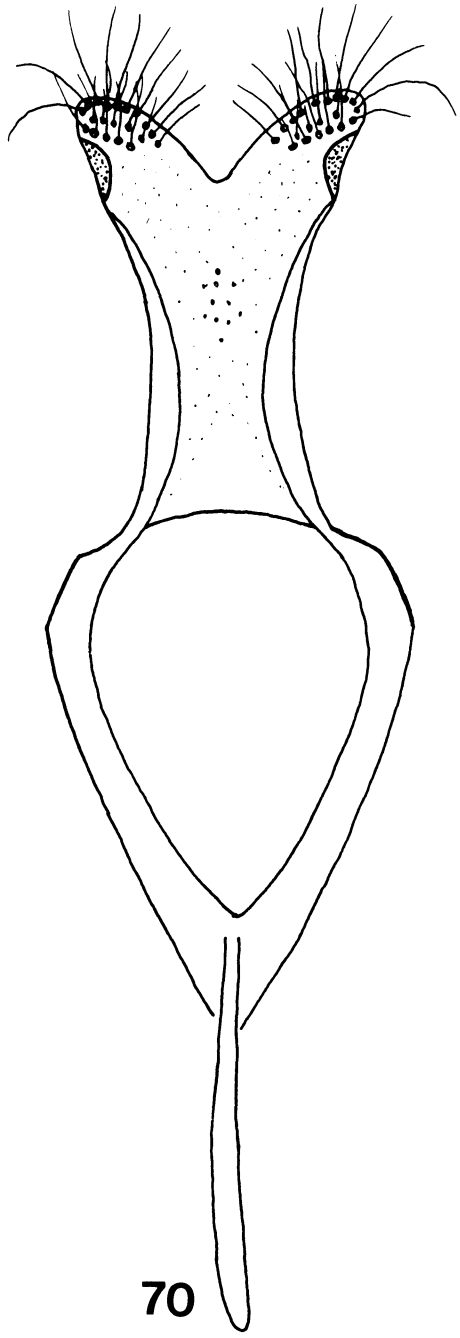


Figures 63–65. ***Amblycerus schwarzi,*** **male genitalia.**
63. Median lobe, ventral view. 64. Medial sclerites of median lobe.
65. Lateral lobes, ventral view.

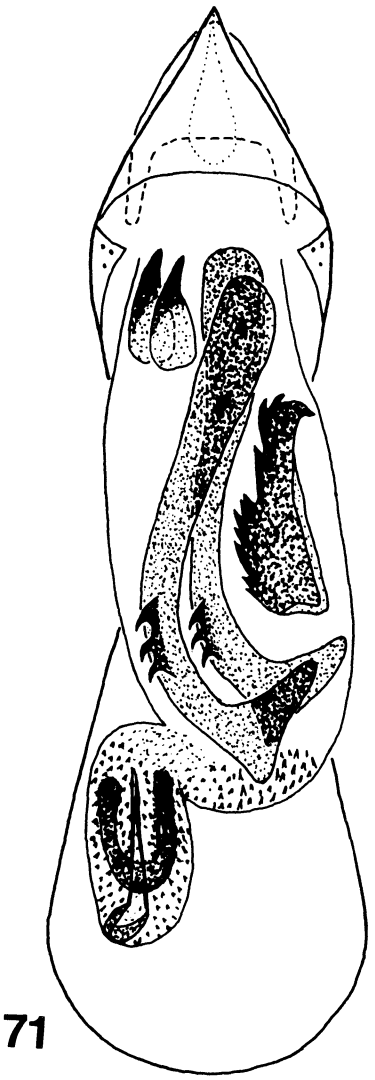


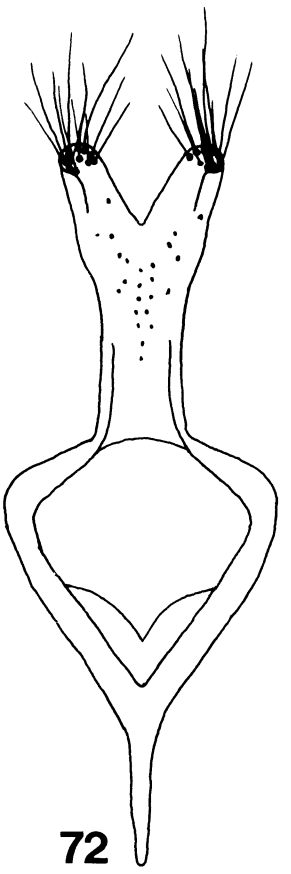
Figures 66–68. ***Amblycerus scutellaris,*** **male genitalia.**
66. Median lobe, ventral view. 67. Medial sclerites of median lobe.
68. Lateral lobes, ventral view.



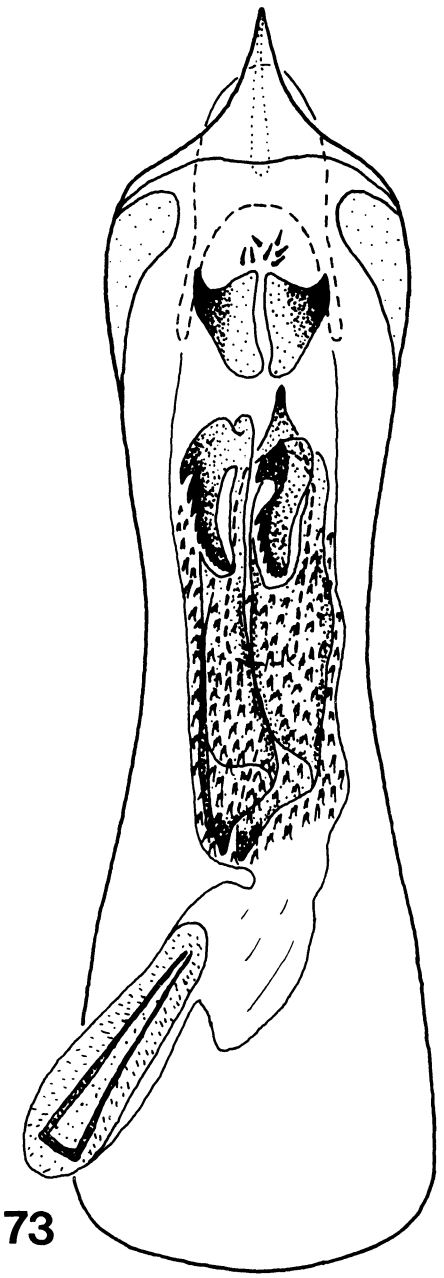


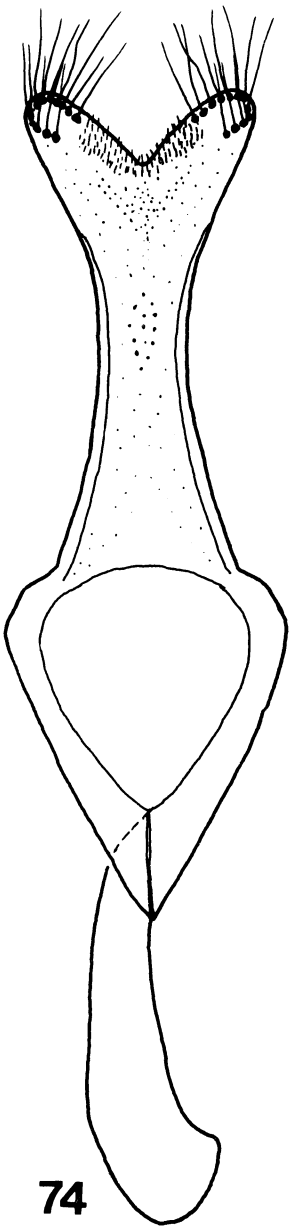
Figures 69–70. ***Amblycerus serieguttatus,*** **male genitalia.**
69. Median lobe, ventral view. 70. Lateral lobes, ventral view.



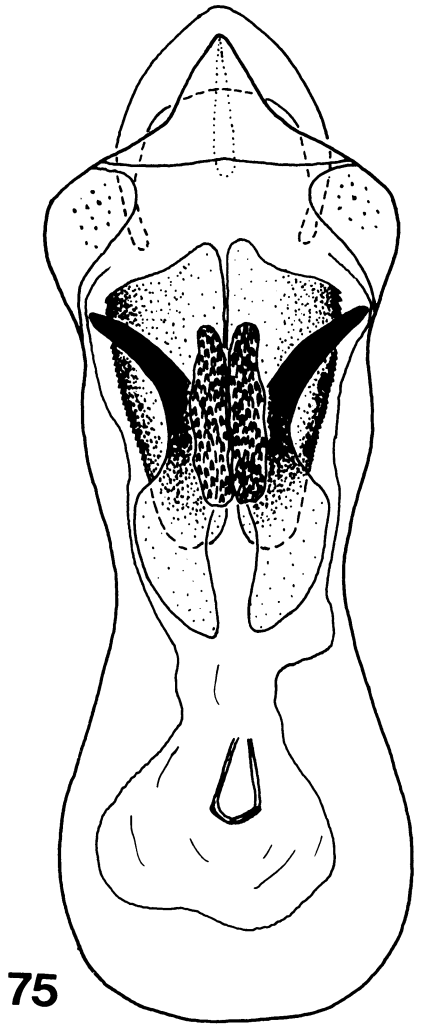


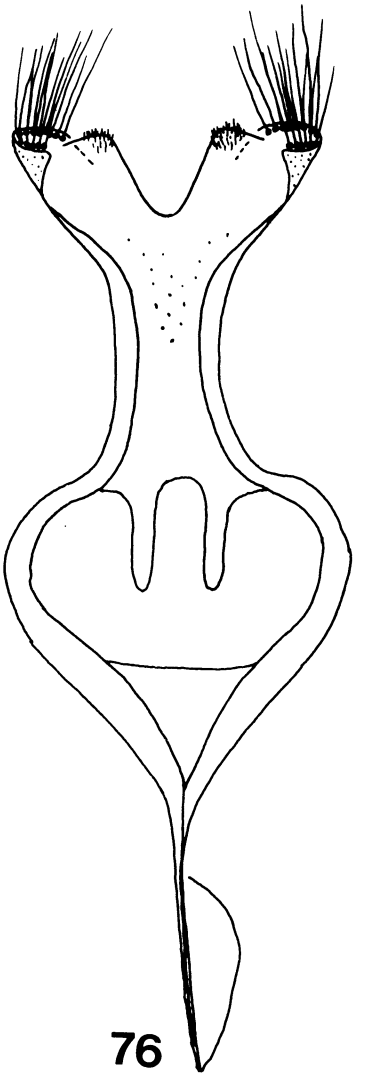
Figures 71–72. ***Amblycerus sosia,*** **male genitalia.**
71. Median lobe, ventral view. 72. Lateral lobes, ventral view.



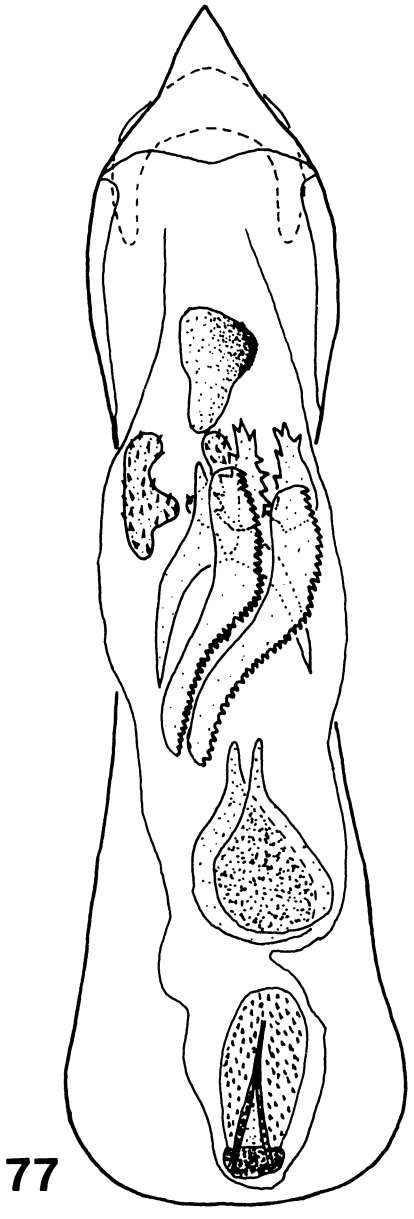


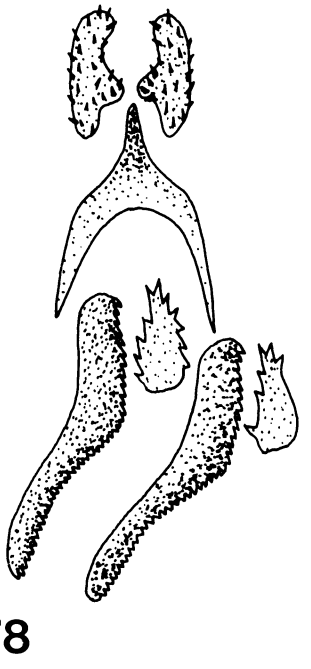
Figures 73–74. ***Amblycerus spondiae,*** **male genitalia.**
73. Median lobe, ventral view. 74. Lateral lobes, ventral view.

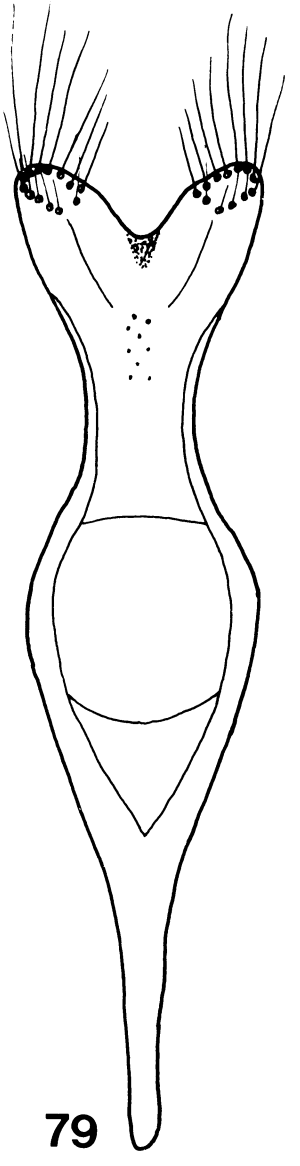




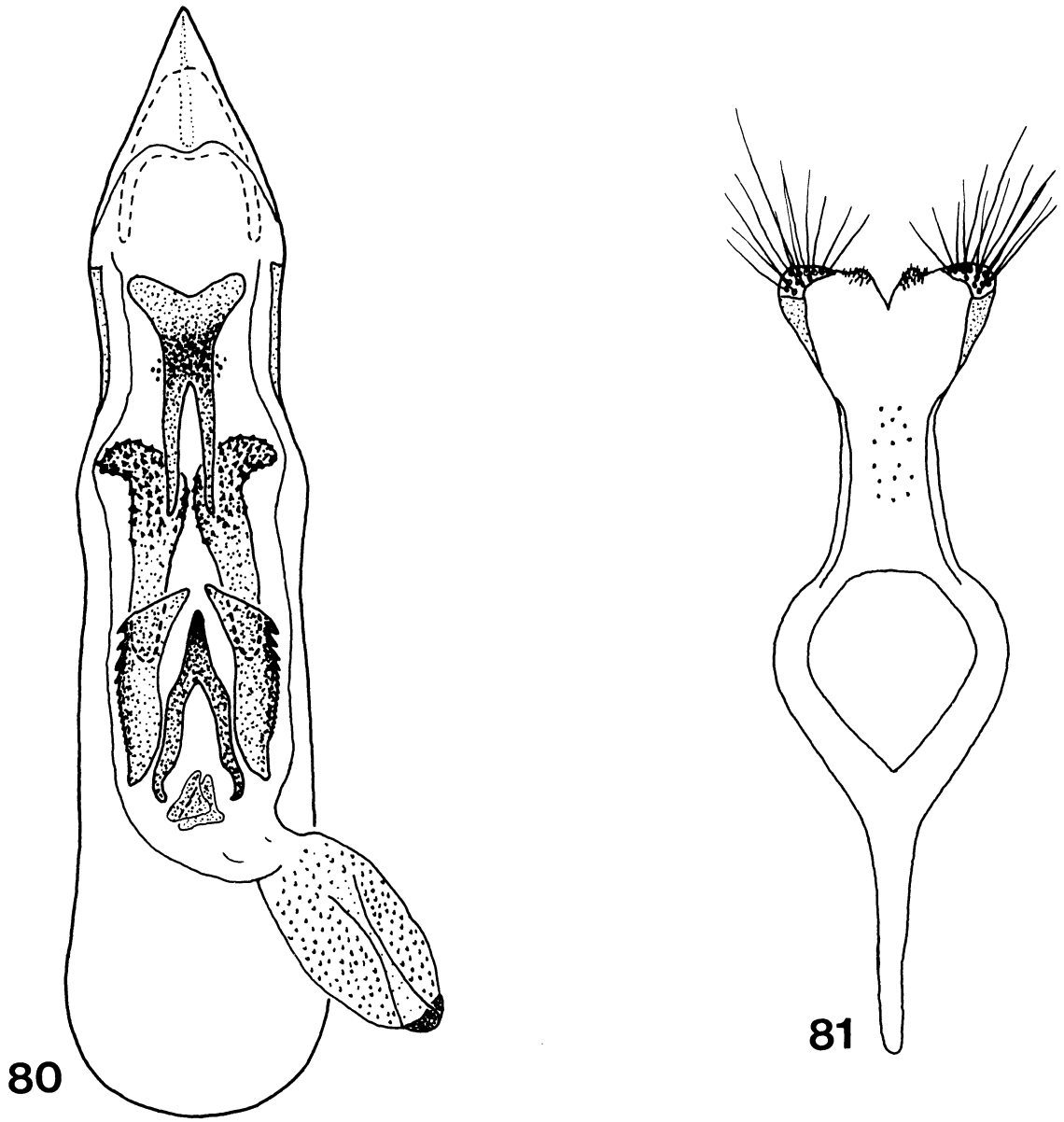
Figures 75-76. ***Amblycerus stridulator,*** **male genitalia.**
75. Median lobe, ventral view. 76. Lateral lobes, ventral view.



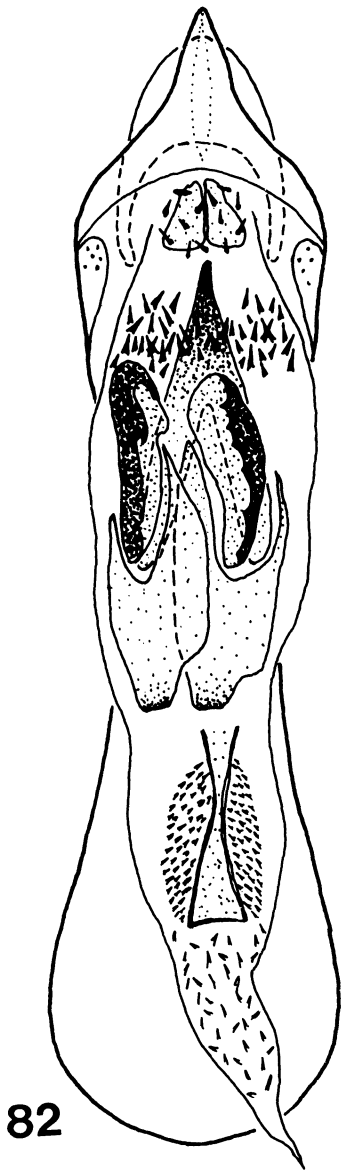


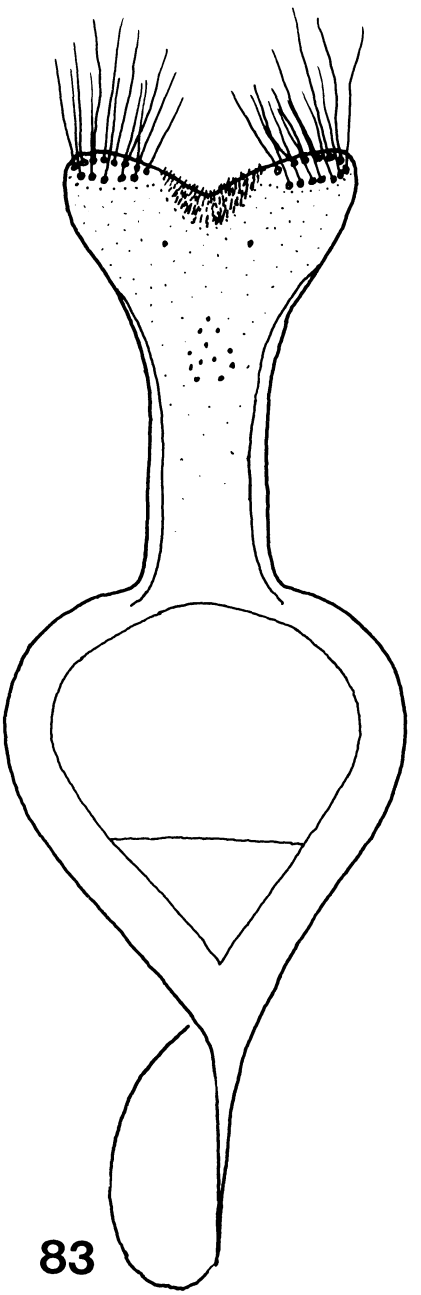


Figures 77-79. ***Amblycerus teutoniensis,*** **male genitalia.**
77. Median lobe, ventral view. 78. Medial sclerites of median lobe.
79. Lateral lobes, ventral view.



Figures 80-81. ***Amblycerus veracruz,*** **male genitalia.**
80. Median lobe, ventral view. 81. Lateral lobes, ventral view.





Figures 82-83. ***Amblycerus vitis,*** **male genitalia.**
82. Median lobe, ventral view. 83. Lateral lobes, ventral view.